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UNIVERSITY OF MICHIGAN.

THE

PRESIDENT'S REPORT

TO THE

BOARD OF REGENTS

FOR

THE YEAR ENDING JUNE 30, 1880.

ANN ARBOR:
PUBLISHED BY THE UNIVERSITY.
1880.

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PRESIDENT'S ANNUAL REPORT.

To the Honorable Board of Regents:

In the absence of the President, who by your consent has accepted from the national government, for a limited period, the office of Minister to China, it becomes my duty as Acting President, to report the state of the University for the year ending June 30, 1880. It would doubtless have been extremely gratifying to the President to present to you in person the report for the year which has been by far the most prosperous in the history of the institution; the ninth year, too, of his own wise and able administration, marked by the steady advancement of the University in the great work for which it was organized, and giving abundant promise of still greater progress in the future. The year has been distinguished by largely increased attendance, by a decided improvement in all departments of the University in the standard of scholarship, and by uninterrupted order and harmony in all its internal working.

The Faculties, now embracing fifty-two officers of instruction, have remained nearly unchanged. Dr. Henry F. Lyster, appointed Lecturer on the Theory and Practice of Medicine during the absence of Professor Palmer, resigned prior to the opening of the first semester, and Professor Palmer, to whom leave of absence had been granted for a year, was recalled from Europe. Professor George S. Morris accepted a temporary appointment to fill the chair of Modern Languages during the absence of Professor Walter, who was permitted by the Board to spend the first semester in Paris. Hon. Alpheus Felch, ex-Governor of the State of Michigan, was appointed to the newly established Tappan Professorship of Law.

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Four hundred and ten degrees on examination, and four honorary degrees have been conferred, as follows:

Degrees on Examination.

Pharmaceutical Chemist	24
Mining Engineer	3
Civil Engineer	4
Bachelor of Letters	3
Bachelor of Science	2
Bachelor of Philosophy	16
Bachelor of Arts	29
Master of Philosophy	2
Master of Arts	7
Doctor of Philosophy	1
Doctor of Medicine (Department of Medicine and Surgery)	91
Bachelor of Laws	175
Doctor of Medicine (Homœopathic Medical College)	19
Doctor of Dental Surgery	34
	410

Honorary Degrees.

Master of Arts	2
Doctor of Philosophy	1
Doctor of Laws	1

The whole number of degrees conferred, therefore, was 414.

The number of students in attendance was fourteen hundred and thirty, registered in the six departments and schools as follows:

Department of Literature, Science, and the Arts.

Resident Graduates	13	
Candidates for Degrees	387	
Students not Candidates for Degrees	48	448

Department of Medicine and Surgery.

Students—Total in the Department	353

Department of Law.

Seniors	180	
Juniors	215	395

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School of Pharmacy.

Resident Graduate	1	
Second Year	33	
First Year	47—	81

Homœopathic Medical College.

Students—Total in the College	70

College of Dental Surgery.

Students—Total in the College	83
	1430

Thus the total of attendance exhibits an increase of 54 over that of the previous year, which itself was unprecedented in the history of the University. This increase is the more gratifying inasmuch as it has taken place in spite of more stringent requirements for admission and graduation, especially in the professional schools.

In the Department of Literature, Science, and the Arts there were 3 candidates for the degree of Mining Engineer; for that of Civil Engineer, 8; Bachelor of Letters (English), 23; Bachelor of Science, 45; Bachelor of Philosophy, 35; Bachelor of Letters (Latin), 63; Bachelor of Arts, 210.

In connection with this enumeration it is worth while to observe that the courses of study, both in the schools of the State and in the University, are so organized and conducted that there is no difference in the completeness of instruction afforded to students who are candidates for the several degrees, whether classical or non-classical. While every student in the High Schools and the University has absolute freedom of choice amongst the various courses or lines of study leading to different degrees, the facilities for learning in each of these courses, the privileges and the honors, are as nearly equal as the authorities of school and University can possibly make them. If there is any preference manifested in either direction, that preference is the result of the student's own judgment. No one is required to study for the classical degree rather than for another, nor do the authorities of the University offer any special inducements for the pursuit of one degree rather than another. For twenty-eight years the University has placed classical and

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non-classical studies on a footing of absolute equality, both in opportunities for acquirement and in rewards for successful attainment. I take occasion to emphasize this fact, because of the prevailing misapprehension which exists in this State and elsewhere as to the relative position held by the Ancient Languages in our educational plan.

Two facts are to be noted: first, that no one is compelled, in pursuing his education through the courses of study in the schools and the University, to spend any time whatever upon the classical languages; and, second, even if the student chooses the so-called classical course, the proportion of time actually devoted to classical studies in that course, is but a small fraction of the whole time given to his education. This can be demonstrated at once by reference to the plan of studies long established in our graded schools, in connection with that of the University.

A Michigan boy or girl, commencing with the Primary School, passing through the High School, and completing a course in the University for either of the four non-professional degrees, designated as Bachelors' degrees, spends, on the average, about sixteen years in the work of education.

Of the four plans of study established in the best organized High Schools, and connecting with each of the four plans in the University leading to these four degrees, one (leading to the degree of B. L.) admits *neither Latin nor Greek;* a second (leading to B. S.) requires in the High School an elementary course of about one year in Latin, as a preparation for the understanding of scientific terms, *but requires no Latin in the University;* a third (leading to the degree of B. L. Latin, or B. P.) requires Latin in the High School and University, but *no Greek*; and one (leading to the degree of B. A.) requires *both Latin and Greek* in the High School and University. Now, the percentages of time spent by our youth on the average in the studies of the Primary School and of these four courses or plans which follow the Primary in High School and University, that is, in the whole sixteen years of his education for the Bachelor's degree, are as follows:

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	B. A.	B. L. (L.)	B. L.	B. S.
Mathematics	19	18	13	19
English	17	16	21	17
Modern Languages	0	10	13	8
Ancient Languages	22	10	0	2
History	2	2	3	4
Writing and Drawing	5	5	5	7
Sciences	9	12	15	30
Electives	24	25	28	11
Music	2	2	2	2
Totals	100	100	100	100

This table represents the percentages of time as arranged in the best schools of Michigan, combined with those of the University. That is, the youth who passes through school and University to the degree of Bachelor of Science, gives two per cent. of sixteen years to Latin, eight per cent. to Modern Languages, and all the rest of his time to English and scientific studies. The candidate for the degree of Bachelor of Letters in English, gives no time at all to Ancient Languages, thirteen per cent. to Modern Languages, and all the rest to English and scientific studies. The Bachelor of Letters in Latin gives ten per cent., that is a little more than one year and a half in sixteen, to Latin, the same to Modern Languages, and the rest of his time to English and scientific studies; unless he choose of his own preference to add more to his knowledge of Latin. Lastly, the Bachelor of Arts gives twenty-two per cent., or a little more than three years in the sixteen, to classical studies, with the privilege also of adding more to this kind of study if he prefer to do so. The remainder of his time, too, that is, a little less than thirteen years, is devoted to English and scientific studies, and, if he desire, to modern languages.

These facts show plainly enough that the complaint sometimes made, that an excessive amount of time is spent by the schools as well as by the University upon the classical studies, is entirely unfounded; and, also, that any deficiency which may exist in the education of our youth in the English Language and in scientific studies, cannot be attributed to undue attention to the Ancient Languages. We should also remember, and the fact, I apprehend, is not generally understood, that one half

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the time given nominally to the teaching of Latin and Greek, even in the classical courses, is in reality employed under good and true teachers, in the most practical and useful kind of study in English; for the labor of the class-room consists largely in severe and critical questions as to the usage of English words and phrases. Whatever complaint may be made of the one-sidedness of education in some of the schools and universities elsewhere, whatever complaint Jules Ferry may make of the excess of the classics in French education, it is evident that such censures have no application whatever to this region, and especially to Michigan. We are in no danger of too much literary culture here. In fact, these figures show that our inquiry should be, and that, too, with some solicitude, not what harm the "dead languages" are doing, but what becomes of the thirteen or sixteen years of the precious time of education given exclusively to English and scientific studies; and what kind of teaching is it which leaves our children and youth, after this large part of life devoted to these branches, so ignorant of them that there is no alternative in defence but to cry out that the classics are to blame? One might suspect that these things would be better learned and understood even if more time were given to the classics. It will be noticed that the period here mentioned of thirteen or sixteen years, devoted to non-classical studies, does not include our professional education, which would, if added, extend the period to sixteen or nineteen years.

That this subject may be still more distinctly presented, I append a table showing the proportions of time assigned to various studies in the University and the schools separately.*

The continuity of the studies in the local schools of the State and in the University, suggests a remark on the working of the plan of school visiting and inspection, adopted by the Literary Faculty ten years ago, and usually called "the diploma system." According to this plan, candidates for admission to the Literary Department, holding the diploma of any Michigan High School, which has been visited on the request of the School Board by an examining committee of the Faculty, and

* Appendix A.

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approved, is admitted to the University without examination. This innovation on old customs, like all innovations, and chiefly because it was an innovation, was met at once with severe criticism, and especially by some distinguished educators in the older colleges; fearing, as was alleged, that such a system would bring down the standard of scholarship. Experience, however, just as in the case of the admission of women to the University, an innovation made at the same period, has proved that there was no ground for fear, except that the thing was new, and not practiced in the mother colleges. Two facts are to be noted among the results: first, the standard of preparation in the High Schools, if affected at all, has been elevated rather than lowered; second, the State system of education has become a reality. It is obvious that there can be no system, properly so called, without an actual and living connection and communication among its members. By calling for the visiting or examining committees of the Faculty, the High Schools have been brought into that vital connection with the University which makes them parts of an actual organism, and, so far as concerns these schools, our State System no longer exists merely on paper.

There are now sixteen of the most flourishing and important High Schools of the State holding this relation to the University; and no one can look into the condition of these schools without feeling satisfied that this connection has had the effect both to animate their students to more earnest effort, and to encourage and strengthen the teachers; while it has brought about a more perfect unity of plan and method in the schools of the State in general. In short, it gives to our schools, otherwise isolated, a bond of union and a centre of life. We are convinced, as the result of an experiment of ten years, that this cooperative plan, especially if entered into by the few remaining schools, and thus perfected, will give a character of consistency, solidity, strength, and efficiency to the educational work of the State, which will leave nothing further to be desired but the uninterrupted operation and movement of the system.

Nearly related to this subject is the question of the possible

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advancement of the Literary Department of the University from the condition of a German Gymnasium or French Lyceum, which it has occupied hitherto, in common with American Colleges generally, to that of a genuine university Department of Letters and Philosophy. The traditional usage of American Colleges, which closes up the work of education with the Bachelor's degree, and accustoms our youth to look upon that degree as the ultimate aim and end of all their studies, has left our liberal education very far below the proper standard, and notably below that of the German Universities. In other words, our Universities have given their strength chiefly to the work of secondary, instead of the higher education. How to make the needed transformation from this almost purely gymnasial work to that of the University proper, has been for some years the problem before the minds of university men.

It is manifestly difficult, if not impossible to change the Gymnasium into a University by merely building up a system of post-graduate courses, as a sort of annex to the old established curriculum of four years; for the post-graduate work will thus continue to be a mere subsidiary appendage, and the so-called Collegiate Department will still be the central and characteristic part of the institution. And, furthermore, the Bachelor's degree, conferred with imposing ceremonies upon the successive classes, will continue to be looked upon as the goal of educational work and the end of all perfection. I could almost venture to express the hope that the time will come when these Bachelors' degrees will even be abolished; and that instead of them, certificates of proficiency or maturity will be given, as in the German Gymnasium, to those who are prepared to enter upon the proper university studies preliminary to the Masters' and Doctors' degrees; especially since the Bachelors' degrees, in the multiplication of our Colleges and Universities, have been made so easy of acquisition that they have well-nigh lost all significance. Now, it seems to me that our close connection with the Public High Schools, and the continuity of the courses of study in the University with those of the schools, give us just the opportunity we need to initiate the proper university

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work, and to make the Masters' degrees gradually take the place of the Bachelors'. For the schools will certainly advance steadily, though slowly, in the grade of their attainments, and thus the university students, being better prepared in the schools, will be enabled so much the sooner to commence their work for the Master's degree. And it is just here, I think, that our new arrangement of studies in the University, which has been called "the new departure," comes in to facilitate the transformation which we desire. For it emancipates the student from the trammels of fixed courses at the period when he is sufficiently advanced in age and discipline, to choose and pursue his studies for himself as an individual, and according to his individual gifts, attainments, and necessities. And this is precisely the characteristic of university work for the Master's degree, as distinguished from gymnasial or lyceum work for the Bachelor's degree. It is probable that this freedom, or liberty of individual advancement, under the favorable circumstances I have spoken of, offering to the student so much encouragement to look beyond the Bachelor's degree, and to remain in the University until he can become a Master, will sooner or later throw the former into the shade, and make the Master's degree the aim of all the more talented and enterprising students. And this probability is strengthened by the constantly increasing number of candidates for the advanced degrees.

I think that every encouragement and incentive should be given to undergraduates to look upon this as the true end and aim of university studies. And thus, I trust, though some of us may not live to see it, that the secondary education may be placed where it belongs. Our Faculty should as soon as possible cease to expend all their time and strength on that which ought to be the work of the High School; thus compelling our more ambitious students to resort to foreign universities to obtain their higher education. For they should get their whole education at home. As one of the most intelligent and patriotic of ancient writers, the Younger Pliny, says, "Our youth should be educated in the land of their birth, resorting to the

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schools of their own country, and learning to love their native soil."

In connection with the statistics of the year it may be of interest to notice that in the attendance of women there was a slight increase over that of the previous year, while the proportion to the whole number of students was somewhat less. There were in the Department of Literature, Science, and the Arts, 81; Department of Medicine and Surgery, 43; Law Department, 1; Homœopathic Medical College, 8; School of Pharmacy, 2; Dental College, 3; total, 138.

Fifty-nine of the women in the Literary Department were candidates for degrees, as follows: Bachelor of Letters, 7; Bachelor of Science, 3; Bachelor of Letters (Latin), 21; Bachelor of Arts, 28; total, 59. There were 22 pursuing selected studies, and not candidates for degrees.

Of the fourteen hundred and thirty students in attendance, six hundred and forty-three were from Michigan; and of these, two hundred and fifty-one were in the Literary Department. Thirty-five other States were represented; most largely, Ohio, Illinois, New York, Indiana, and Pennsylvania. There were also students from England, Prussia, Japan, Burmah, Hawaii, the Bermudas, and the Provinces of Ontario, Quebec, and New Brunswick. The fees for matriculation and other purposes received from the seven hundred and eighty-seven students outside of the State, amounted to about $30,000.

In all the professional schools there has been an increase of attendance, excepting the Law Department, in which there was no material variation from the usual number. In the Department of Medicine and Surgery, the increase of numbers and the extension of the course to three years, with the accompanying division of the school into classes, will call for some modification of the present arrangement of lectures, the details of which must be determined by conference of the Faculty with the Board. The condition of the Department and its urgent wants are fully set forth in the Dean's report.

The Homœopathic College is gaining gradually in numbers. The question of an addition to its corps of professors must soon

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be considered; and perhaps such an addition, if attainable before the opening of another year, may be of advantage in relieving the burden of the Department of Medicine and Surgery.

The amphitheatres now connected with the hospitals of both Medical Schools, and the clinics, greatly multiplied by the number of patients resorting to both hospitals, have added immensely to the value of our medical education, while they have proved an inestimable boon to the sick and suffering from all parts of the State, as well as from abroad. The whole number of patients treated during the year, in both departments, was upwards of one thousand eight hundred.

The Law School, which of all the departments of the University, has from its organization, twenty-one years ago, to the present day, moved on with the least interruption and irregularity, and with the most perfect harmony, has passed through the year with its usual prosperity. The enlargement of its Faculty by the addition of a new chair, named after the first President of the University, the honored and venerable Dr. Henry P. Tappan, and the appointment to this chair of one of our most distinguished citizens and most eminent lawyers, the Hon. Alpheus Felch, have added greatly to the efficiency and usefulness of this department. An opportunity has thus been afforded to the Law students, especially to those of the first year, for daily class recitations and examinations, in addition to the usual course of lectures. It is to be regretted that the department, by the intrusion of the University Library, is still deprived of the use of a large portion of the building originally intended for its exclusive accommodation. I hope that the necessity for this kind of trespass will soon be removed. The Law Department needs all the space contained in the building, and even more. The earnest appeal on this subject, contained in the report of the Dean of the Law Faculty, I doubt not, will receive from the Board all that consideration which the urgency of the case demands. And I would remark here that the interests of the whole University, not less than those of the Law Department, make it imperative that new accommodations should be

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provided as speedily as possible for the General Library. The entire inadequacy of the apartment which it now occupies in the Law Building, the great disadvantage we are suffering in its use for the want of more room and a better location, will be brought to your attention by the Committee of the Faculties on the Library.

The interesting report of the Dean of the School of Pharmacy indicates the continued success of that department. The papers written by its professors and students have been published extensively, and quoted with approbation in the principal pharmaceutical journals of this country as well as those of England and Germany. To our School have been assigned for several years by the National Society of Pharmacy some of the most important subjects of investigation in chemical analysis, to be reported to that society; without any doubt, the industry and distinguished attainments of its officers, and the enthusiasm, success, and rapidly growing reputation of its graduates have given our School a position at least as high as that of the best Schools in this country. I bespeak your attention to the detailed report of the Dean of the Faculty; and also, as a kind of exponent of the high aims and success of the School, to the accompanying report of the Scientific publications of the Dean himself during the long period of his faithful service, and to the notice of a new method of chemical study originated by another professor of the school, taken from the *Chemical News* of London.

The Dental School continues to justify the provision made to the legislature for its organization and support. It is steadily growing, and its good service to the important profession which it represents, is already widely appreciated. In creating this School as well as that of Homœopathic Medicine, the Legislature undoubtedly did not intend to do its work by halves, and will continue to afford the necessary means not only for sustaining, but for strengthening both of these Faculties; so that both may do full justice to the responsible work which has been placed under their charge.

The University now possesses four Laboratories: that of

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Analytical and Applied Chemistry, which is often styled by distinction "the Laboratory;" the Laboratory of General Chemistry, the Physiological Laboratory, and the Physical Laboratory. The work of the first two is carried on in the Laboratory building; the dimensions of which it has been found necessary to enlarge, in order to accommodate the increasing number of students. The work of the Physiological Laboratory is conducted in the Medical building, and the Physical Laboratory is connected with the lecture room of the professor of Physics. The equipment of all the Laboratories has been much improved, and the work performed is greatly promoting the study of Science in these several branches.

Not the least interesting and important work of the University is that which comes under the designation of Microscopy. A large supply of instruments has been furnished to the students of Physiology, of Analytical Chemistry, and of Natural History. Their investigations under the direction of skillful microscopists, pursued with no little enthusiasm, have secured the good results which were anticipated; particularly, accuracy of observation and precision of knowledge.

The Astronomical Observatory will soon be in a condition, on the adjustment of the instruments received from Washington, to prepare students for the practical part of Astronomical study. The peculiar work of the Observatory, now, as heretofore, somewhat embarrassed by the want of a larger corps, is conducted with marked ability and success. The time and labor of the professor are devoted not less to instruction and lecturing in theoretical and general astronomy than to the work of the Observatory.

The General Library has within the last two years become even more important to the intellectual success of the University than ever before. The great change which has been introduced in the plan of instruction and method of study, have made the Library instead of the text-book, to a large extent, the apparatus for study and preparation for class-room examinations. The breadth and depth of scholarship, and I may say, the manhood, which this kind of investigation pro-

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motes, should be encouraged. To this end, greatly enlarged accomodations should be secured at the earliest possible moment. And for the same reason, as well as to meet the pressing wants of the members of all the Faculties, some more abundant means should be provided for the purchase of books. The small appropriations hitherto made for this object have not sufficed to keep the Library supplied even with the most important publications of the day. Meanwhile in every department of learning and letters there is a multitude of standard works, which are indispensable to thorough study and completeness of research, and which the Library can never possess without some special and extraordinary appropriations. It is much to be desired that the importance of a large and complete Library to the success of University work might be made more perfectly apparent. While experimental apparatus is requisite for the teaching of Physical Science, we should remember that books are the apparatus of the brain—the vital condition of real progress, whether in Philosophy, Science, Literature, or History. I doubt whether a University can be justly called great until it possesses an ample, if not a great Library. When the University of Strasburg was reorganized, on the recovery of Alsace to the German empire, in 1870, almost the first thing thought of by the public authorities was the creation of a Library. All Germany was appealed to for contributions of books, and institutions and citizens throughout the empire responded to the call. This, and not the erection of buildings, was reckoned the first necessity. I earnestly hope that the proposition to be made by the Library Committee of the Faculties, that a larger appropriation than usual be asked of the Legislature for this purpose by the Board, will meet with your approbation. I would also call your attention to the important statement contained in the report of Professor Adams on the same subject. For the wants of the current year I beg leave to suggest that an appropriation be made by the Board, not less than the usual amount, to supply the books needed for immediate use.

The Librarian reports the present state of the General

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Library, and of other libraries in the University, as follows:

Number of volumes in General Library, 29,345; Law Library, 4,037; Society Libraries, 2,100; Library of Young Men's Christian Association, 1,000; total number of volumes accessible to students, 36.482; number of unbound volumes and pamphlets, 8,255.

Additions to the General Library, 1,882 volumes, and 301 pamphlets; to the Law Library, 100 volumes.

The Museum of Art and History has been enriched with the addition of a valuable collection of coins, mostly ancient, made by the gratuitous labors of Dr. A. E. Richards, one of the most accomplished numismatists of this country, formerly a citizen of this State, but now residing in Europe. Genuine antique coins are becoming daily more difficult to obtain, and, of course, more expensive; and the interest manifested by Dr. Richards in the University, which has led him to make this collection for its benefit, and thus to lay the foundation of a university museum of coins, deserves our most hearty acknowledgements.

The financial exhibit of the year is highly encouraging.* Never has so large an income been received from the students, and never, I think, has the income from all sources been appropriated to better advantage. But an institution like this can never receive an income adequate to its wants. The very fact which is taken as the best indication of prosperity, the increase of numbers, always increasing in the same ratio the demand for enlarged accommodations and additional instructors, dooms a University, and especially this University, to perpetual want. It is rich only in its students and its graduates. And it must hold up these before the State authorities—these, with its faithful efforts to do good service to the State, and to expend wisely the moneys committed to its trust, as the ground of appeal for continued sympathy, confidence, and support.

In the thirty-nine years since the doors of the institution were first opened, it has had under its instruction not less than *eight thousand students;* and now at the opening of a new year

*Appendix D.

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it has enrolled not less than *fourteen hundred and seventy*, and will probably register not less than fifteen hundred. Of all those who have been under our instruction, *six thousand one hundred and sixty-six* have been graduated. These numbers indicate, so far as numbers can, the work which has been accomplished.

The expense of the State in sustaining the University thus far, including the appropriations of the last two years for building and other purposes, has been $570,000. The inventory just completed of the real estate and other property of the institution, gives us a valuation of $681,442; one hundred and ten thousand dollars in excess of the cost of the University to the State for nearly forty years. This excess, or balance, over and above the outlay of the State Treasury, is due partly to the donations of citizens and professors, but chiefly to the wise and skillful management of the Board of Regents in the use of the income which the University has received independently of the State.

If, therefore, our necessities, growing with our prosperity, compel us to look to the legislature for continued assistance, we can point to a record, as we think, of great success and usefulness in the host of youth we have helped to an education, and to a most faithful and even productive administration of our finances, as a just and reasonable argument for the continued generosity of the legislature.

Among the wants recognized by the University, in addition to that of a building for the General Library, is that of a gymnasium for the promotion of the physical development and health of the students. Physical training is necessary both to health and manhood. A sound mind without the sound body loses half of its efficiency. For several years our students have been active in cultivating field sports and athletic exercises, in order to compensate, to some extent, for the lack of a gymnasium. They have also been making earnest and commendable efforts to raise the funds necessary for the erection and equipment of a suitable building. But the opportunities within the reach of students for creating such a fund, are exceedingly limited; and

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they cannot hope, without assistance, to raise the requisite amount. The struggle which they are making deserves our hearty sympathy. It is said "the gods help those who help themselves." And the honorable legislature, they believe, will respond readily and generously to an application on the part of the Regents for an appropriation which, added to the amount obtained from various sources by the students themselves, will secure the building and the requisite apparatus.

In connection with improvements in building, will come up the question of the remodelling of the north wing of University Hall for miscellaneous purposes, after the collections now deposited there shall have been transferred to the new museum building. It is desirable that some plan for the new arrangement of the space should be adopted, and the necessary expense provided for.

The Deans of the Faculties of the professional schools, and the professors representing the various chairs in the Academic Faculty, have presented detailed reports of the work under their supervision, which will give an insight into the internal operations of the University during the year, and which are intended to accompany the President's report.* The reports of the professors, however, do not represent minutely the actual amount of labor necessarily involved in their work. I hardly need remark to the Board, that a lecture, or class exercise of any kind, exacts much greater outlay of time and strength than the hour devoted to the class. I append also a tabulated statement, prepared by the Secretary, of the studies pursued under the Academic Faculty, and of the number of students attending upon each.†

While we entertain just feelings of pride in the progress which this institution has made in the brief period of its existence, we must not close our eyes to its deficiencies. It still comes far short of the noble idea which was embodied in its original plan by the founders of the State and of the University. Their views were so comprehensive and complete that with all our endeavors we can scarcely hope in less than one more gen-

* Appendix C. † Appendix B.

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eration at least, to reach the outside limit of their scheme. The idea which they left to our inheritance, and which embraced both the University and the whole body of public education, has become identified with the life and growth of the State. It is in substance this: That no son or daughter of Michigan shall be compelled to resort to any other State or country in order to acquire any knowledge or discipline necessary to the welfare of the citizen and of the State. Every educational want shall be provided for here at home, just as perfectly as if no other State nor any private institution were in existence. For the State has no right to expect its work to be done by any other State, much less by any private corporation. Nothing shall be left to chance, caprice, prejudice, or narrowness. The existence and happiness of the commonwealth require that every one of her children shall be guaranteed the opportunity of making the most and best of himself. Moreover, the State must protect itself from imposition, charlatanism, and quackery in the professions which deal with the interests of life and property; it must have safe and skillful physicians, and sound and trustworthy lawyers. Besides this, it must have well trained teachers for its youth; scientists who will enable it to understand and develop its natural resources; civil engineers and architects who will make buildings and bridges which will not imperil life; mining engineers who will render available its great mineral deposits—mining engineers, not trained in New York, or New Haven, but in Michigan, a mining State. And, finally, it must have sooner or later, those who will minister to life through the refining influences of art. For art, too, was included in the original plan of our education; and it is a want as real as any other which education supplies. Therefore, the State, for its own ultimate welfare, must maintain the whole circle of professional and practical schools.

All these things entered into the conception of public education entertained by our State fathers; and their idea, I think, is fixed and ineradicable in the constitution, and in the minds of the people. It is our privilege and duty to make this idea, so far at least as relates to the University, a reality. Under the good

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providence of God much has been accomplished; enough, indeed, to give us strong confidence in the final completion of the work.

In conclusion, I beg leave to congratulate the Board on the prosperous condition of the institution placed by the State under their supervision, and on the promise which it affords of an auspicious future.

HENRY S. FRIEZE,

Acting President.

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APPENDIX A.

TABLES PREPARED BY ASSISTANT PROFESSOR BEMAN, OF THE UNIVERSITY, AND BY PROFESSOR PERRY, SUPERINTENDENT OF THE ANN ARBOR SCHOOLS, SHOWING THE PERCENTAGES OF TIME GIVEN TO THE STUDIES IN THE SEVERAL COURSES OF THE UNIVERSITY AND THE SCHOOLS.

The figures opposite the specified studies do not indicate all the time actually given to such studies, but simply all that is required. The student can at pleasure take more work in the same studies among the electives.

I. STUDIES IN THE UNIVERSITY.

B. A.	Hours.	Per Cent.
Greek	19	15.83
Latin	15	12.50
Mathematics	16	13.33
English	4	3.33
Philosophy	2	1.67
Physics	3	2.50
General Chemistry	3	2.50
Electives	58	48.33
Totals	120	100.00

B. L.	Hours.	Per Cent
Mathematics	2	1.54
French	16	12 31
German	17	13.08
English	10	7.69
Philosophy	2	1.54
Natural Sciences	10	7.69
Electives	73	56.15
Totals	130	100 00

B. L. (LATIN).	Hours.	Per Cent.
Latin	17	13.08
Mathematics	16	12 31
French	8	6.15
German	8	6.15
English	4	3.08
Philosophy	2	1,54
Physics	3	2.31
General Chemistry	3	2.31
Other Sciences	5	3 85
Electives	64	49 23
Totals	130	100.00

B. S.	Hours.	Per Cent.
Mathematics	16	12.31
French	8	6.15
German	8	6.15
English	4	3.08
Philosophy	2	1.54
Physics	5	3.85
General Chemistry	5	3.84
Astronomy	3	2.31
Zoology	5	3.85
Botany	5	3.84
Drawing	5	3.85
History	5	3.84
Mineralogy	5	3.85
Laboratory, Phys. or Chem	5	3 84
Laboratory, Microscop	5	3.85
Electives in Nat. Science	15	11.54
Unrestricted Electives	29	22.31
Totals	130	100.00

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II. STUDIES IN THE PUBLIC SCHOOLS—INCLUDING THE PRIMARY AND ALL OTHER GRADES.

Studies.	Classical Course.	Latin Scientific Course.	Scientific Course.	English Course.
	Per Cent.	Per Cent.	Per Cent.	Per Cent.
English Language	30	30	31	35
Ancient Languages	16	8	4	0
Modern Languages	0	8	4	0
Mathematics	25	25	25	25
Natural Sciences	12	12	19	21
History	4	4	4	6
Writing and Drawing	10	10	10	10
Music	3	3	3	3
Totals	100	100	100	100

III. PERCENTAGES IN THE UNIVERSITY AND PUBLIC SCHOOLS COMBINED.

	B. A.	B. L. (L.)	B. L.	B. S.
Mathematics	19	18	13	19
English	17	16	21	17
Modern Languages	0	10	13	8
Ancient Languages	22	10	0	2
History	2	2	3	4
Writing and Drawing	5	5	5	7
Natural Sciences	9	12	15	30
Electives	24	25	28	11
Music	2	2	2	2
Totals	100	100	100	100

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APPENDIX B.

TABLE SHOWING THE NUMBER OF STUDENTS IN THE VARIOUS COURSES AND PRESENT AT EXAMINATION.

No. of Course.	Subjects.	No. of Students Present at Examination.	No. of Recitations a week.
	GREEK.		
I	Lysias	64	4
II	Thucydides	45	3
III	Demosthenes	47	3
IV	Plato; Lyric Anthology	10	3
V	Teachers' Course	15	1
VI	Homer	55	4
VIII	Lucian	26	2
IX	Aristotle; Aristophanes	9	3
X	Iliad; Philology	15	1
XI	Herodotus	6	3
XII	Sophocles	43	4
XIII	Greek Literature	71	1
XVI	Sophocles	7	4
	LATIN.		
I	Terence	92	4
II	Quintilian	81	4
III	Pliny's Letters	13	1
IV	Art Lectures	8	2
V	Teachers' Course	2	1
VI	Livy	89	4
VII	Horace (Odes and Epodes)	57	2
VIII	Ars Poetica; Juvenal	58	3
IX	Tacitus	15	3
X	Cicero's Tusculan Disputations	16	2
XI	Art Lectures	62	1
XII	Teachers' Course	24	1
XIV	Seneca	10	1
	SANSKRIT.		
I, II	Elements	7 3	2 1
	MATHEMATICS.		
I	Algebra	114	4
II & VI	Gen. Geom. and Calculus	78	4
III	Advanced Calculus	14	5
IV	Determinants	3	1
V	Geometry and Trigonometry	106	4
VII	Modern Geom. and Trilinear Co-ordinates	1	2
VIII	Quaternions	3	2
IX	Calculus of Variations	4	2
X	Trigonometry	6	2
XI	Analytical Mechanics	10	4
	FRENCH.		
I	Grammar	75	4
II	Idiomatic Analysis	63	4
III	Classics (Racine, Molière)	25	3
IV	Romantic Dramas	9	2
V	Grammar; Reading	63	4
VI	Idiomatic Analysis; Composition	44	4
VII	Literature—16th Century	9	3
VIII	Literature—19th Century	27	3
	GERMAN.		
I	Grammar	117	4
II	Iphigenie	68	5
III	Grammar	103	4
IV	Lessing's Laokoon	31	2
V	German Literature	12	2
VI	Faust	49	3
VII	Gothic (Ulfilas)	1	2
	ITALIAN.		
I	Grammar and Reading	35	2
	ENGLISH.		
I & VII	Grammar and Speeches	133	2
II & VIII	Rhetoric	60	2
IV	Anglo-Saxon	18	2
VI	Masterpieces	44	3
IX	Transitional Eng. period	17	2
X	Modern English period	64	2
XI	Shakespeare	27	3
XIV	English Drama	46	1
	HISTORY.		
I	Bright's Hist. of England	68	3

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No. of Course.	Subjects.	No. of Students Present at Examination.	No. of Recitations a week.
II	Guizot—Civilization	57	3
III	Polit. Hist. of England	39	2
IV	Seminary	34	2
VI	Hist. of America	66	2
VII	Continental Europe	25	3
IX	Wright's Hist. of England	65	3
X	Von Holst	47	2
XI	Government of England	133	2
XII	Seminary	30	3
XIV	Von Holst	18	2
	PHILOSOPHY.		
I	Psychology	84	2
II	Ethics; Spec. Philosophy	21	5
III	Logic	72	2
IV	Hist. of Philosophy	18	5
	SCIENCE AND ART OF TEACHING.		
I	Practical	31	2
II	Historical and Critical	74	2
	POLITICAL ECONOMY.		
I	Text-Book	84	2
II	Lectures	34	2
	INTERNATIONAL LAW.		
	Lectures	57	2
	PHYSICS.		
I	Short Course	47	3
II	Long Course	43	5
III	Laboratory Work	4	5
IV	Laboratory Work	9	3
VII	Theoretical Physics	1	2
VIII	Problems	9	1
	GENERAL CHEMISTRY.		
I	Experimental	50	3
II	Lectures and Experiments	39	5
III	Kinetic Theory of Gases	7	2
IV	Laboratory Methods	4	3
V	Laboratory Methods	8	5
	ANALYTICAL CHEMISTRY.		
I	Qualitative	13	10
V	Quantitative	10	7
Va	Quantitative	3	5
Vb	Quantitative	3	2
VIII	Physiological Chemistry	6	3
IX	Assaying—wet and dry	7	3
X	Blow Pipe Analysis	7	2
XII	Assaying—dry way	5	2
	MINERALOGY.		
I	Short Course	10	2
II	Full Course	2	5

No. of Course.	Subjects.	No. of Students Present at Examination.	No. of Recitations a week.
	ASTRONOMY.		
I	Theoretical	1	5
II & VI	General Astronomy	27	3
III	Spherical and Practical	10	2
IV	Theoretical	2	5
V	Meteorology	6	2
	GEOLOGY.		
I & II	Facts and Doctrines—Oral Exercises	33	3
III	Palæontology	7	2
IV	Advanced Palæontology	1	5
V	General Geology	4	* 1
V & VI	General Geology and Oral Exercises	20	2
VII	Advanced Palæontology	2	5
VIII	Economic Geology	3	4
IX	Geology of U. S.	1	2
	ZOOLOGY.		
I	Systematic	51	5
II	Invertebrates	2	5
III	Comparative	40	5
IV	Identification of Vertebrates	12	5
V	Entomology	10	3
VI	Advanced Course	2	5
	BOTANY.		
I	Cryptogamic	7	5
III	Structural	26	5
IV	Advanced Botany	4	3
	DRAWING.		
I	Geom. Drawing	16	2
II	Lettering and Topography	13	2
IV	Free-hand	38	3
V	Descriptive Geometry	12	3
VI	Shades and Shadows	7	3
VII	Free-hand	14	3
VIII	Water-colors	2	2
	SURVEYING.		
I	Transit and Level	15	3
II	Solar Compass	14	2
III	Advanced Surveying	12	5
IV	Field work	8	*
	CIVIL ENGINEERING.		
I	Strength and Resistance	5	2
II	Theory of Construction	5	2
III	Graphical Analysis	3	1
IV	Engineering Design	2	5
V	Machine Drawing	10	2
VI	Machinery; Prime movers	5	3
VII	Applied Mechanics	14	1
VIII	Theory of Construction	2	4
IX	Hydraulics	2	1
X	Stereotomy	9	2
	METALLURGY.	7	3

* No regular time.

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APPENDIX C.

REPORTS OF DEANS OF FACULTIES, AND OF THE PROFESSORS OF THE ACADEMIC FACULTY.

I.

THE DEPARTMENT OF LITERATURE, SCIENCE, AND THE ARTS.

FROM THE DEAN OF THE FACULTY.

The nature and amount of the instruction given within the past year in the Department of Literature, Science, and the Arts is explained in sufficient detail in the reports of the various Professors. One subject, however, of no little public interest, has received the attention of the Academic Faculty as a whole, and may, therefore, with propriety be reported upon by the Dean of the Faculty.

Under the so-called diploma-system, students who have completed their preparatory studies in those High Schools of Michigan which have been approved by special action of the Faculty, are admitted to the University without further examination. This system has now been in operation since the fall of 1871, a period of nine years.

It has seemed, on the whole, to work favorably, both for the University and the schools. In order, however, to ascertain more definitely what has been the degree of success obtained in the working of the system, a committee of the Faculty, consisting of Professors Pettee and Beman, was appointed in April last, to take into consideration the general subject of the standing in college of students admitted on diploma, compared with the standing of those admitted on examination.

As a preliminary step in the inquiry the committee collated and arranged in systematic form the results of the college examinations for the first year of all the students admitted to the several Freshman classes from the fall of 1871 to that of 1879, inclusive. It was not thought

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necessary to take into account the results of examinations in subsequent years. A year in college ought to be sufficient to obliterate distinctions, if any exist, arising from differences in the preparatory schools. The labor of arranging the results of the examinations was very great, involving a study of the records of more than one thousand different students, and the tabulation of the results of nearly ten thousand examinations. The tables which contain the detailed record have been so arranged by the committee as to show at a glance what examinations each student passed, and in what he failed or was in any way deficient.

From these tables of details, a careful summary was made for each semester of the nine years covered by the investigation. In these summaries the results of work done by diploma students are shown distinct from the results of the work of the students admitted on examination, and the percentage of success for each group of students is given. In addition to the summaries by semesters, tables were prepared to show the annual averages for each class of students, and a few other matters of interest bearing upon the general subject. The percentages of success were obtained by dividing the number of examinations successfully passed by the total number that, by the rules of the Faculty, ought to have been passed. From these tables of details and the summaries, the Committee have also compiled the tables printed below.

Students have been admitted on diploma from sixteen different schools. Table A below shows the actual average attendance of diploma students from each of these schools for each of the nine years during which the system has been in operation, and the average attendance of students admitted on examination for the same period. The fractions which appear in this table arise from the fact that an odd number of students left college at the end of the first semester, or that an odd number of students, who were not present the first semester, joined the classes of the second.

The percentages of success of the two great groups of students for each of the nine years, and the averages for the whole period, are given in Table B. It will be seen that the percentage is in favor of the students admitted on diploma.

In every year a greater or less number of matriculated students, who begin work in the several classes, are obliged to leave College before the end of the first semester; and others, after completing the work of the first semester, leave before the end of the year. Without inquiring at all into the causes of leaving, the committee compiled a table to show how far these removals from College affected the numbers of diploma students and of examination students, respectively,

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in their first college year. The result of this inquiry, given in Table C, is that a smaller percentage of the students admitted on diploma have left College than of those admitted on examination.

TABLE A,

SHOWING THE AVERAGE ATTENDANCE OF STUDENTS ADMITTED ON DIPLOMA AND OF STUDENTS ADMITTED ON EXAMINATION, FOR THE NINE YEARS, 1871-72 TO 1879-80.

	1871-72.	1872-73.	1873-74.	1874-75.	1875-76.	1876-77.	1877-78.	1878-79.	1879-80.	Total.
Adrian	1	1	3½	.....	1	.....	.....	.....	.....	6½
Ann Arbor	14	24	28	38½	37½	25	32	24½	29½	253
Battle Creek	.....	.....	.....	.....	2	1	2	2	.....	7
Coldwater	.....	.....	2	4	1	4	2	1	2	16
Detroit	3	.....	3	7	3	1	6½	10½	7	41
East Saginaw	.....	.....	.....	.....	.....	.....	.....	.....	7½	7½
Fenton	.....	.....	.....	.....	3½	1	2	1	3	10½
Flint	7	5½	2	1	1	1	2½	4	1	25
Grand Rapids	.....	.....	1	3	.....	4	3	6	4½	26½
Jackson	7	3	5	1	.....	4	3	2	.....	25
Kalamazoo	3	1	.....	.....	.....	.....	.....	.....	.....	4
Mich. Military Acad	.....	.....	.....	.....	.....	.....	.....	.....	5	5
Niles	.....	.....	.....	.....	.....	4	.....	.....	.....	4
Pontiac	.....	.....	4	6½	3	4	2	5½	1½	26½
State Normal	.....	.....	.....	.....	.....	.....	1	.....	.....	1
Ypsilanti	.....	.....	8	1	.....	1	.....	1	.....	11
Total Diploma	35	34½	56½	62	52	50	61	57½	61	469½
Examination	116	74½	53	42½	45	63	48	75	57½	574½
Total	151	109	109½	104½	97	113	109	132½	118½	1044

TABLE B,

SHOWING THE NUMBER OF STUDENTS IN ATTENDANCE AND THE AVERAGE PERCENTAGE OF SUCCESS, FOR THE NINE YEARS, 1871-72 TO 1879-80.

		1871-72.	1872-73.	1873-74.	1874-75.	1875-76.	1876-77.	1877-78.	1878-79.	1879-80.	Total.
Diploma.	In attendance	35	34½	56½	62	52	50	61	57½	61	469½
	Percentage of success	85.77	84.96	80.04	94.58	86.89	86.90	95.81	90.54	90.57	88.91
Examination.	In attendance	116	74½	53	42½	45	63	48	75	57½	574½
	Percentage of success	84.47	87.23	87.18	85.97	86.70	86.29	89.47	89.71	89.51	87.22

The cases of bad failure in college work are about equally divided between diploma and examination students. The basis of comparison

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adopted by the committee in investigating this phase of the subject was the more or less complete failure in three or more examinations in a single semester. Table D shows the number of these exceptionally bad failures for each group of students for each year. For the whole period of nine years, there were in the aggregate fifty-eight cases of bad failure among the diploma students, and seventy such cases among the examination students. To make the comparison just between the two groups of students, the proportion of bad failures relatively to the total amount of work reckoned by semesters, was ascertained. From the first of the above tables (A), it will be seen that the total attendance of diploma students for the nine years is 469½. Consequently the total work done by this class of students is represented by 939 semesters. In a similar way the work done by students admitted on examination will be found to amount to 1,149 semesters. Of these numbers, the fifty-eight and the seventy bad cases of failure are respectively 6.18 per cent. (for diploma students), and 6.09 per cent. (for examination students).

TABLE C,

SHOWING THE NUMBER OF STUDENTS WHO LEFT COLLEGE IN THE FRESHMAN YEAR, FOR THE NINE YEARS, 1871-72 TO 1879-80.

		1871-72.	1872-73.	1873-74.	1874-75.	1875-76.	1876-77.	1877-78	1878-79.	1879-80.	Total.	Per Cent.
Diploma.	Number enrolled in class.....	40	35	61	67	56	55	68	67	65	514	.....
	Left before examinations of first semester.....	3	.....	4	4	2	4	5	7	2	31	6.03
	Left during second semester.....	4	1	1	2	4	2	4	4	3	25	4.86
Examination.	Number enrolled in class.....	123	92	68	49	53	64	60	79	59	647	.....
	Left before examinations of first semester.....	3	16	14	5	7	.....	10	3	.....	58	8.96
	Left during second semester.....	8	3	2	3	2	2	4	1	2	27	4.17

TABLE D,

SHOWING THE DISTRIBUTION OF THE CASES OF BAD FAILURE, FOR THE NINE YEARS, 1871-72 TO 1879-80.

	1871-72.	1872-73.	1873-74.	1874-75.	1875-76.	1876-77.	1877-78.	1878-79.	1879-80.	Total.	Per Cent.
Diploma.....	5	6	16	3	9	10	2	1	6	58	6.18
Examination.....	9	6	7	8	7	16	4	7	6	70	6.09

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The tables prepared by the committee also throw a little light upon the practical working of the elective system; though the results of two years alone are too few to found any very broad generalization upon. Prior to the general introduction of the elective system the work of the Freshman year was so arranged that, as a rule, all students were required to do the same amount of work, viz., the equivalent of three exercises a day for five days in the week; or, expressed as it would be under the new system, fifteen hours a week. For the last two years a considerable freedom of choice in the election of studies has been allowed, and it thus becomes important to know which class of students has done, on the average, the greatest amount of work. As a partial answer to this question the following table is given.

TABLE E,

SHOWING THE NUMBER OF HOURS OF WORK ELECTED BY FRESHMEN, FOR THE TWO YEARS, 1878–79 AND 1879–80.

	1878–79.			1879–80.			Average for Two Years.
	1st Semester.	2d Semester.	Average.	1st Semester.	2d Semester.	Average.	
Diploma Students	15.52	15.73	15.63	15.55	15.40	15.48	15.55
Examination Students	14.96	16.28	15.62	14.72	15.12	14.92	15.32
Twenty-one-Year Students	11.45	13.16	12.31	13.50	13.92	13.70	12.96
Total	14.49	15.49	14.99	14.83	15.02	14.93	14.96

An inspection of Tables E and B brings us to one other interesting conclusion. During the first seven years of the period under review, that is, before the adoption of the elective system, the attendance was regularly fifteen hours a week, and the percentage of success was, for diploma students, 88.36, for students admitted on examination, 86.50. During the past two years, that is, since the adoption of the elective system, the attendance has been, of diploma students, 15.55 hours a week, of students admitted on examination, 15.32; while for the same period the percentage of success has been, for diploma students, 90.56, and for students admitted on examination, 89.61. Thus it appears that although the number of hours taken by the students under the elective system is slightly greater than was the number taken under the old system, the percentage of success is also somewhat higher.

C. K. ADAMS.

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FROM THE PROFESSORS OF THE DEPARTMENT.

I.—FROM THE PROFESSOR OF THE LATIN LANGUAGE AND LITERATURE.

The Courses offered for each semester were the following:

FIRST SEMESTER.

1. Terence; Latin Grammar; Latin Prose Composition. *Monday, Tuesday, Wednesday, Friday*, Sec. I., 2–3; Sec. II., 3–4; Sec. III., 4–5. Asst. Prof. Elisha Jones.
2. Quintilian (10th Book); Odes of Horace; Lectures on Roman Literature. *Monday, Tuesday, Wednesday, Thursday*, Sec. I., 10½–11½; Sec. II., 11½–12½. Prof. Frieze.
3. Pliny's Letters. *Friday*, 10½–11½. Prof. Frieze.
4. Lectures on Classical Antiquities and Art. *Monday and Wednesday*, 3–4. Prof. Frieze.
5. Teachers' Course. *Friday*, 4-5. Prof. Frieze.

SECOND SEMESTER.

6. Livy; Satires of Horace. *Monday, Tuesday, Wednesday, Friday*, Sec. I., 2–3; Sec. II., 3–4; Sec. III., 4–5. Asst. Prof. Elisha Jones.
7. Odes and Epodes of Horace. *Tuesday and Thursday*, 10½–11½. Prof. Frieze.
8. Horace (Ars Poetica); Juvenal. *Monday, Wednesday, Friday*, Sec. I., 9½–10½; Sec. II., 10½–11½. Asst. Prof. Elisha Jones.
9. Tacitus (Germania and Agricola). *Monday, Wednesday, Friday*, 10½–11½. Prof. Frieze.
10. Cicero's Tusculan Disputations. *Tuesday and Thursday*, 11½–12½. Prof. Frieze.
11. Lectures on Classical Antiquities and Art. *Wednesday*, 3–4. Prof. Frieze.
12. Teachers' Course. *Friday*, 4–5. Prof. Frieze.
14. Essays of Seneca. Prof. Frieze.

From this schedule it will be perceived that the Professor of Latin devoted to lectures and recitations thirteen hours a week during the first semester and ten during the second, or an average of two to three hours daily during the year; and that the Assistant Professor devoted twelve hours to recitations during the first, and eighteen during the second semester, or an average of three hours a day during the year.

The following table shows the number of students in attendance on each of the above-mentioned Courses:

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1	98
2	81
3	13
4	21
5	24
6	93
7	57
8	68
9	15
10	16
11	75
12	14
14	41
Total	616

The Courses numbered 1 and 6 were conducted wholly by recitation. The Latin text was translated and the exercise was accompanied by grammatical analysis, composition, and a considerable amount of collateral study in history and antiquities.

In the other Courses, except the lectures on classical antiquities and art, it was the principal aim of the instructor to lead the students to a complete understanding and appreciation of the author, in respect to subject-matter and literary excellence, rather than to make the text a basis for the study of the grammar. To this end the exercises of the class-room consisted largely of annotations and exegesis, with occasional lectures on Roman literature and history.

The work of the students has been done in general with much earnestness and with commendable success, which is due in some measure, at least, to the exercise of a reasonable amount of liberty in the choice of studies.

H. S. FRIEZE.

II.—FROM THE PROFESSOR OF MATHEMATICS.

I submit the following report of work done in the department of Pure Mathematics during the academic year 1879–80.

COURSES OFFERED.

FIRST SEMESTER.

1. Advanced Algebra. *Four times a week.* Asst. Prof. C. N. Jones and Asst. Prof. Beman.
2. General Geometry and Calculus. *Four times a week.* Prof. Olney and Asst. Prof. Beman.

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3. Advanced General Geometry and Calculus. *Five times a week.* PROF. OLNEY.
4. Determinants. *Once a week.* ASST. PROF. C. N. JONES.
10. Trigonometry. *Twice a week.* ASST. PROF. BEMAN.

SECOND SEMESTER.

5. Advanced Geometry; Plane and Spherical Trigonometry. *Four times a week.* ASST. PROF. C. N. JONES.
6. General Geometry and Calculus. *Four times a week.* PROF. OLNEY and ASST. PROF. BEMAN.
7. Modern Geometry and Trilinear Coordinates. *Twice a week.* Asst. PROF. BEMAN.
8 Calculus of Variations. *Twice a week, first half of semester.* PROF. OLNEY.
9. Quaternions. *Twice a week, second half of semester.* PROF. OLNEY.
11. Analytical Mechanics. *Four times a week.* ASST. PROF. C. N. JONES.

Professor Jones's work was as follows: *First semester*: 4 sections in Course 1, numbering in all 110 students; Course 4, 3 students; in all, 17 hours a week for the Professor. *Second semester*: 4 sections, Course 5, 90 students; Course 11, 13 students; in all, 20 hours a week for the Professor.

Professor Beman's work was as follows: *First semester*: Course 10, 6 students; Course 1, 19 students; 4 sections, Course 2, 78 students; in all, 14 hours a week for the Professor. *Second semester*: Course 7, 1 student; Course 5, 16 students; 4 sections, Course 6, 78 students; in all, 14 hours a week for the Professor.

Professor Olney's work was: 4 sections, Courses 2 and 6, throughout the year, each twice a week, 80 students. *First semester:* Course 3, 5 times a week, 18 students. *Second semester*: twice a week in Courses 8 and 9, 6 students; in all, 13 hours a week the first semester, and 10 the second. The number of hours a week the second semester was exceptionally small, in consequence of inability to divide Courses 2 and 6 into as many sections as there should have been.

The amount of Professor Jones's work, as will be seen, was simply intolerable. The Board has very wisely given him relief for the ensuing year, which, I hope, will add greatly to the efficiency of the instruction. The work in the department is considerably in excess of that done last year, both as regards the number of students and the range of subjects.

It is proposed to add a two years' course of Mathematical reading as soon as there shall be a sufficient demand for it, in such standard works as Salmon's Higher Algebra, Frost's Solid Geometry, Dostor's Determinants, Todhunter's or Price's Integral Calculus, and Tait's Quaternions.

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The above statement of work does not include examinations, general or special, and the general oversight of the work, which at some periods is no inconsiderable part of of the duties of the Professor in charge.

EDWARD OLNEY.

III.—FROM THE PROFESSOR OF HISTORY.

I beg leave to present the following account of the work in History during the academic year, 1879–80.

As in previous years, the studies in Ancient History were conducted under the direction of the Professors of Greek and Latin, and therefore hardly come under the cognizance of this department.

The instruction in Modern History has had three objects in view: first, the general history of Europe from the fall of the Roman Empire to the French Revolution; second, the more careful study of the political and constitutional history of England; and third, a thorough study of the political and constitutional history of the United States. The work done for the accomplishment of these several objects was as follows:

1. In the first semester a course of lectures was given on the institutions of the Middle Ages. The lectures were thirty-two in number, and their purpose was to show at once the course and the meaning of events from the beginning of the barbarian invasions to the time of the renaissance. At the conclusion of this course of lectures, and supplementary to them, Guizot's History of Civilization in Europe was used as a text-book. The number of students taking this course was fifty-seven.

In the second semester the general history of Europe was continued three hours a week, the text-book used being Professor C. D. Yonge's Three Centuries of Modern History. The course embraced the whole period treated by the author and extended from the Revival of Learning to the outbreak of the French Revolution. The number of students in the class was twenty-six.

2. The instruction given in the history of England had four somewhat distinct purposes in view: first, a knowledge of the principal events of English history; second, a careful study of the constitutional history of England; third, the political history of England during the present century; and fourth, the theories and methods of the English Government. For the accomplishment of these purposes, the following courses of instruction were given:

Three hours a week during the first semester on the general history of England from the accession of the House of Tudor to the over-

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throw of the Stuarts. The text-book used was Bright's History of England. The number of students taking the course was sixty-eight. In the second semester, the course was continued from the overthrow of the Stuarts to the close of the Napoleonic wars. Volume III. of the same work was used as a text-book. The number of students in the class was sixty-five.

The constitutional history of England was studied in the Historical Seminary. The class contained none but students of advanced standing, several of the number being candidates for a second degree. No one text-book was assigned, and no lectures were discussed, but topics with large numbers of references were given, and investigation of each subject assigned was required of each member of the class. The class was divided into three sections, each section holding a session of two hours each week. The number of students in the class was thirty-four.

On the political history of England since the fall of Napoleon I. a course of two lectures a week was given during the first semester. The number of students in this course was thirty-nine.

A course of two lectures a week was given during the second semester on the theories and methods of the English Government, and was elected by a hundred and fifty-two students.

3. Four courses were likewise given on the History of the United States, viz.:

A course of two lessons a week on the political history of America from the settlement at Jamestown to the adoption of the Articles of Confederation. Eliot's History of the United States was used as the text-book. The class contained sixty-six members.

An advanced course in the constitutional history of the United States, volume I. of von Holst being used as the text-book. The lessons of the class were two a week, and the class numbered forty-seven.

Another class used the second volume of the same work during one semester. The lessons were two a week, and the number in the class was nineteen.

The political history of the United States was also studied in the Historical Seminary. The class was divided into small sections for historical investigation; and each student was with the professor three hours a week. Only students who had already completed the other work in United States History were admitted to the class. The number of students in the course was thirty.

The following tabular form will show at a glance the number of students in the courses in History.

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1.	History of England, 1485–1688, (Asst. Prof. Hudson)	68
2.	Middle Ages, Lectures, (Prof. Adams)	57
3.	England Since 1815, Lectures, (Prof. Adams)	39
4.	English Constitutional History, (Prof. Adams)	34
6.	Political History of the Colonial Period, (Asst. Prof. Hudson)	66
7.	General History of Europe, (Asst. Prof. Hudson)	26
9.	History of England, 1688–1815, (Asst. Prof. Hudson)	65
10.	Constitutional History of the United States, 1789–1817, (Asst. Prof. Hudson)	47
11.	The Government of England, Lectures, (Prof Adams)	152
12.	Political History of the United States, (Prof. Adams)	30
14.	Constitutional History of the United States, 1817–1852, (Asst. Prof. Hudson)	19
	Total number in Historical classes	603

I desire to call your attention to the inadequacy of the University Library for the wants of the students of history.

The following table has been made up by the Assistant Librarian, for the purpose of showing the number of works drawn by students in the several departments of study. Each column represents the number of books drawn for one week. The seven columns, therefore, show the number of works drawn in as many different weeks, the weeks having been taken at random in the course of the last five years. The week in the first column was in October 1874; that in the last, in May, 1880. It is supposed that the proportions fairly represent the average use of the library in the several branches classified:

History	296	268	288	353	424	296	289
English Literature	97		78	214	316	277	167
Ancient and Modern Languages	42	60	40	60	126	115	103
Political Economy	6	52	25	19	43	41	9
Philosophy	52	7	36	39	37	18	24
All the Sciences	55	60	63	102	163	84	129

This table shows that in the seven weeks (selected at random) the whole number of books drawn was 4,993, and that of this number 2,214 were on the subject of history, while the number drawn on all other subjects combined was 2,779. An inspection of the table will further show that previous to 1878, when the Seminary method of work was adopted in English Literature, the number of works drawn on historical subjects exceeded by many the works drawn on all other subjects combined.

Attention is called to this fact for the purpose of raising the question whether some provision ought not to be made by which the supply of historical books in the library can be increased. According to

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the system long since adopted for the selection of books to be purchased, the head of each department is invited by the Library Committee to furnish a list of books needed in his department. The lists so furnished represent books of a certain aggregate value, varying from fifty to one hundred dollars each. Of these lists the department of History furnishes one; English Literature, one; Languages, three; Political Economy, one; Philosophy. one; the Sciences, ten. For some years past the books recommended on these special lists have very nearly exhausted the appropriation available after paying for the periodicals and the binding. The consequence has been that the Library Committee has found it impossible to add very largely to any of the lists. On this account the department of History has suffered especial inconvenience. The figures above given indicate that of all the books drawn from the library during the past six years, nearly one half have been on the subjects of history; while of the lists of books to be purchased, the Chair of History is entitled to recommend only one seventeenth. The result is that in some of the important branches of history no contributions have been made to the library in several years.

It is only within very recent time that the History of the United States has received in this University any very considerable attention. A number of courses are now offered, but the resources of the library are entirely inadequate to the giving of successful instruction. Attention is called to this fact in the hope that the question will at least be considered whether an especial appropriation for the purchase of books on American History may not with propriety be asked for.

C. K. ADAMS.

IV.—FROM THE PROFESSOR OF MENTAL AND MORAL PHILOSOPHY.

The Professor of Mental and Moral Philosophy respectfully reports that the subjects embraced in his department of instruction have been as follows:

1. Psychology.
2. Logic.
3. Ethics.
4. Speculative Philosophy, Rational Psychology, Rational Cosmology, and Rational Theology (Natural Theology).
5. History of Philosophy.
6. Evidences of Christianity.

The only required study is *Psychology;* the rest are optional.

The time devoted to each subject is indicated below.

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FIRST SEMESTER.

Lectures on Speculative Philosophy (including a short course on the fundamental postulates of Ethics), 5 hours a week.

Lectures and recitations in Psychology (2 sections), 4 hours a week.

The students in Speculative Philosophy wrote theses on topics assigned them by the Professor.

SECOND SEMESTER.

Text-book recitations in the History of Philosophy, 5 hours a week.

Recitations in Logic (2 sections), 4 hours a week.

The Lectures on the Evidences of Christianity were omitted last year (the only time they have been omitted for the past 11 years) in consequence of the sickness of the Professor, who was granted leave of absence by the Regents before the end of the College year.

The number in attendance upon the several courses was as follows:

Speculative Philosophy	23
History of Philosophy	22
Psychology	90
Logic	71
Total	206

B. F. COCKER.

V.—FROM THE PROFESSOR OF APPLIED CHEMISTRY.

The organization of the instruction in Analytical and Applied Chemistry, for the year 1879-80, has remained very nearly unchanged from the preceding year, as presented with details under the last report of the President. A tabulated statement of the hours and duration of each Course of study, of the number of students of each University department in attendance in each Course, and of the duties of each Instructor, is presented below.

Last year I urged the need of a decided increase in the works on Chemistry in the General Library, and I can only repeat that, for the suitable encouragement of original research, in this department as in others, we want a considerable expenditure for books.

The number of students in the Laboratory has been such as to place an average of from thirty-four to forty under the daily instruction of each of the regular teachers.

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Studies.	Number of Students.	Exercises a week.*	Duration of Course.
DEPARTMENT OF LITERATURE, SCIENCE, AND THE ARTS	28	.....	One Semester
(Studies in Analytical Chemistry, all elective)			
Qualitative Analysis—(Course 1). ASST. PROF. JOHNSON	14	.....	
Recitations	.....	5	
Laboratory work	.....	5	
Quantitative Analysis—(Course 5). MR. CHEEVER	14	.....	
Lectures	.....	2	
Laboratory work	.....	5	
Physiological Chemistry—(Course 8). ASST. PROF. ROSE	5	.....	
Laboratory work	.....	5	
Assaying of Ores—(Course 9). MR. CHEEVER	5	3	
(Course 12)	5	2	
Blow-pipe Analysis—(Course 10). MR. CHEEVER	6	2	
Original Investigations—(Course 11). PROF. PRESCOTT	3	5	
DEPARTMENT OF MEDICINE AND SURGERY, HOMŒOPATHIC MEDICAL COLLEGE, DENTAL COLLEGE.	300	.....	Seven weeks
Qualitative Chemistry. DR. VAUGHAN, ASSISTED BY MR. THUM.	209	.....	
Lectures and class-drills	.....	5	
Laboratory work	.....	5	
Physiological Chemistry. ASST. PROF. ROSE	.....	.....	
Medical requirement: Lectures	154	3	
Laboratory work		5	
Dental requirement: Laboratory work	26	5	3 weeks
Advanced Course: Laboratory work	1	.....	20 weeks.
Toxicology: Laboratory and Lectures. ASST. PROF. ROSE.	5	5	7 weeks
SCHOOL OF PHARMACY—(Studies all required)	85	.....	.....
Qualitative Analysis. ASST. PROF. JOHNSON	42	.....	22 weeks
Recitations	.....	5	.....
Laboratory work	.....	5	.....
Quantitative Analysis. MR. CHEEVER	35	.....	14 weeks
(Two successive sections)			
Lectures	.....	3	.....
Laboratory work	.....	5	.....
Pharmaceutical Preparations. PROF. PRESCOTT, ASSISTED BY MR. IRWIN. (Two successive sections)	27	.....	12 weeks
Laboratory work (class instruction in the Pharmacy lectures)	.....	5	.....
Toxicology. ASST. PROF. ROSE	33	.....	6 weeks
Laboratory work	.....	5	.....
Lectures	.....	2	.....
Physiological Chemistry. ASST. PROF. ROSE	30	.....	6 weeks
Laboratory work	.....	5	.....
Lectures	.....	3	.....
Organic Analysis. Laboratory. DR. VAUGHAN	27	5	6 weeks
(Class instruction in PROF. PRESCOTT'S Pharmacy lectures).			
Original Investigations. PROF. PRESCOTT	24	5	5 to 10 weeks.
FROM ALL DEPARTMENTS. In laboratory work of Analytical and Applied Chemistry, during 1879-80	413	.....	.....
In 1878-9	374	.....	.....
In 1877-8	351	.....	.....

*Each exercise in the Laboratory requires two to three hours' work. Recitations and lectures continue one hour.

ALBERT B. PRESCOTT.

VI.—FROM THE PROFESSOR OF THE GREEK LANGUAGE AND LITERATURE.

I have the honor to present the following report of the work done in the department of Greek, for the academic year 1879-80:

FIRST SEMESTER.

Course 1 (required). Lysias and Athenian History; with Asst. Prof. Pattengill, four times a week; sixty-five students, in two sections.

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Course 2 (required). Thucydides; with Asst. Prof. Pattengill, three times a week; forty-five students, in two sections.

Course 3 (required). Demosthenes on the Crown and Lectures on the Greek Orators; given by Prof. D'Ooge, three times a week; fifty-two students, in two sections.

Course 4 (elective). Plato's Gorgias, selections from the Lyric Anthology, and the Medea of Euripides; read with Prof. D'Ooge, three times a week; eleven students.

Course 5 (elective). Lectures on Greek Grammar and on methods of teaching Greek; by Prof. D'Ooge, once a week; seventeen students.

Course 11 (elective). The Seventh Book of Herodotus; read with Prof. D'Ooge, twice a week; six students.

SECOND SEMESTER.

Course 6 (required). The Odyssey (Sixth Book); with Asst. Prof. Pattengill, four times a week; fifty-six students, in two sections.

Course 7 (required). The Antigone of Sophocles and the Birds of Aristophanes; with Prof. D'Ooge, four times a week; seven students.

Course 8 (elective). Selections from Lucian; with Asst. Prof. Pattengill, twice a week; twenty-nine students.

Course 9 (elective). Selections from the Ethics of Aristotle, the Acharnians of Aristophanes, Lectures on the Greek Drama; given by Prof. D'Ooge, three times a week; ten students.

Course 10 (elective). Teachers' class in Greek Prose Composition; with Prof. D'Ooge, once a week; sixteen students.

Course 12 (required as a substitute for *Course* 7). The Electra of Sophocles, and the Frogs of Aristophanes; with Asst. Prof. Pattengill, four times a week; forty-five students.

Course 13 (required). History of Greek Literature and Art, with Lectures; by Prof. D'Ooge, once a week; seventy-six students.

From an examination of these statements it will appear that the entire number of students enrolled in all the courses in Greek was 196 in the first, and 239 in the second semester, or a total of 435 for the year, which is an increase over the number of last year, and the largest number in the history of the University. Of this number 89 are enrolled in elective courses.

In addition to the courses already named, I have spent during the second semester about two hours a week with a student who was reading privately and pursuing advanced courses. One candidate for the Master's degree, Mr. A. W. Burnett, presented a thesis in this department, entitled "The Character and Influence of the Old Athenian Comedy."

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Finally, I desire to bear witness to the valuable work of the Assistant Professor, to whose growing efficiency and influence the prosperity of this department is in no small degree indebted.

MARTIN L. D'OOGE.

VII.—FROM THE PROFESSOR OF CIVIL ENGINEERING.

The work in the department of Civil Engineering for the past year has been under the charge of the same instructors as were enumerated in the report for the preceding year, and the scope and character of the instruction have been essentially unchanged. The Courses given in each semester, the number of exercises a week in each Course, the name of the teacher and the number of students in attendance, were as follows:

FIRST SEMESTER.

Course.	Subject.	Weekly Exercises.	Instructor.	No. of Students.
1. Drawing	Geometrical Drawing	2	Asst. Prof. Davis	16
2. Drawing	Topographical Drawing, Lettering, etc	2	Mr. Denison	13
4. Drawing	Free-hand Drawing, pen and ink	3	Mr. Denison	31
1. Surveying	Transit and Level	3	Asst. Prof. Davis	15
2. Surveying	Compass, Solar Compass, U. S Surveys	2	Asst. Prof. Davis	14
1. Civil Engineering	Strength and Resistance of Materials	2	Prof Greene	5
2. Civil Engineering	Theory of Construction	2	Prof. Greene	5
3. Civil Engineering	Graphical Analysis of Structure	1	Prof. Greene	3
4. Civil Engineering	Engineering Design	5	Prof. Greene	2
5. Civil Engineering	Mechanism and Machine Drawing	2	Mr. Denison	11
6. Civil Engineering	Machinery and Prime Movers, Water-Wheels, and Steam Engine	3	Prof. Greene	5
10 Civil Engineering	Stereotomy	2	Mr. Denison	5

SECOND SEMESTER.

Course.	Subject.	Weekly Exercises.	Instructor.	No. of Students.
4. Drawing	Free-hand Drawing	3	Mr. Denison	7
5. Drawing	Descriptive Geometry	3	Asst Prof. Davis	12
6. Drawing	Shades, Shadows, and Perspective	2	Mr. Denison	8
7. Drawing	Free-hand Drawing, (advanced)	3	Mr. Denison	15
8. Drawing	Architectural Water-color Drawing	2	Mr. Denison	3
3. Surveying	Plane-table, Sextant Earth-work	5	Asst. Prof. Davis	12
4. Surveying	Field work, 4 weeks entire		Asst. Prof. Davis	9
4. Civil Engineering	Engineering Design, (advanced)	5	Prof Greene	2
7. Civil Engineering	Applied Mechanics	1	Prof Greene	13
8. Civil Engineering	Theory of Construction, Continued	4	Prof. Greene	2
9. Civil Engineering	Hydraulics, Water-supply, Sewerage	1	Prof. Greene	3
10. Civil Engineering	Stereotomy	2	Mr Denison	4

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The graduates from this department in the past have filled satisfactorily many responsible positions, a fact that speaks well for their theoretical and practical training. During the last year the opportunities afforded the undergraduates for acquiring familiarity with actual field operations, as distinguished from the problems and exercises for practice which have also been given, have been better than in the years before. Most of the students have participated, upon Saturdays and holidays, in the land surveying in this vicinity, and in the location and construction of the Toledo, Ann Arbor, and North-Eastern Railroad, and, in vacations, four of the undergraduates were regularly attached to section parties on the above railroad.

The month of June has usually been devoted by the class in Surveying to a practice-survey of a railroad line, under the immediate supervision of Professor Davis. As the last class had already spent a week in making a change of some three miles in the location of the T., A. A., and N. E. R. R. at Orchard Lake, it was decided, upon the suggestion of Regent S. S. Walker, to spend the four weeks of field work in making a survey of a portion of Maple river in Clinton county, to determine the practicability and method of draining the swamp above the village of Maple Rapids. This improvement was found to be feasible, and it was proposed to effect the change by removing an old dam and by deepening certain portions of the channel of the river. The swamp would thus be relieved of water for some twelve miles, many hundred acres of land would be reclaimed, and the sanitary condition of the surrounding country would be improved. The examinations made by the class extended over fifteen miles of river, including accurate surveys by transit lines, levels, soundings, and cross-sections on about three miles; a plane table survey in complete detail of forty acres at the site of the most important part of the proposed improvement and including a portion of the village; the whole accompanied by complete maps, plans, and profiles for an estimate of cost.

For a detailed statement of the instruction in the other branches taught in the department it may be sufficient to refer to the last Calendar, py. 47–49.

It is hoped that a way may be found, before long, to afford facilities for the experimental determination of the strength of building materials and for the verification of text-book statements in regard to the action of the parts and joints of frames, the flow of water, etc. A remodelling of the draughting rooms, so as to improve the lighting, by skylights or otherwise, is also considered desirable.

CHARLES E. GREENE.

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VIII.—FROM THE PROFESSOR OF ENGLISH LITERATURE.

I hereby submit to you my report respecting the work in English Language and Literature during the year just ended.

Courses One and Seven. English Grammar and Speeches. Conducted by Mr. Demmon. These Courses are identical, and one of them is required of all students for graduation. During the past year one hundred and forty-six students took this work. The classes completed Abbott's "How to Write Clearly," and the chapters in "How to Parse" that treat of Difficulties and Irregularities of Modern English. Two original speeches were required of each student. The manuscripts, nearly three hundred in number, were all carefully criticised by the instructor and returned to the student to be rewritten, if necessary, and to be committed to memory and spoken before the class. There is great need among our students for this sort of training. Further practice in writing and a more thorough course in reading and speaking than we are now able to give, are urgent needs of this department of the University.

Courses Two and Eight. Rhetoric: Theory and Practice. Conducted by Mr. Demmon. These Courses are also identical, and one of them is required for graduation in all Courses except the Civil Engineering. Seventy-one students took this work during the year. Hill's "Science of Rhetoric" was used as a text-book. Each student was required to present two essays. The instructor criticised these essays in manuscript, and, afterwards, orally in the presence of the class. In many cases private criticism was also given.

In estimating the work of the instructor in the above four Courses, the correction of four hundred and thirty-four manuscripts during the year should not be overlooked. This work is of a peculiarly trying and exhaustive kind and brings little or no self-improvement to the instructor. Nothing but the feeling that it is an important service to the student, could ever induce any competent person to undergo the drudgery connected with it.

Course Three. Extemporaneous Speaking. This Course was discontinued at the opening of the year on account of the pressure of work in other Courses.

Courses Four and Nine. English Literature: Periods of Anglo-Saxon and Transitional English. Conducted by Mr. Demmon. Nineteen students elected Course Four, and twenty, Course Nine. In the former Course, Sweet's "Anglo-Saxon Reader" was used for selections, and Corson's "Hand-book" in the latter Course. For the literary history of the period, Morley and Tyler's "Manual of English Literature" was used in both Courses. These Courses, forming a continuous study of our

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language and literature from Alfred to Chaucer, were taken in the main by the same students and were pursued with unabated interest.

Courses Five and Ten. English Literature: Period of Modern English. Conducted by Mr. Tyler. It was necessary this year to make these two Courses identical; but hereafter they will cover different periods, as is indicated in the Calendar. Course Five will be devoted to the period of Early Modern English, that is, from the middle of the fourteenth century to the middle of the sixteenth; and Course Ten will be devoted to the period of Modern English, that is, from the middle of the sixteenth century to the present time. The two courses were elected by sixty-seven students.

Course Six. English Literature: Study of Masterpieces. Conducted by Mr. Tyler. This Course was elected by forty-five students. The method of work and the ground traversed, were the same as described in my last report.

Course Eleven. English Literature: Study of Shakespeare. Conducted by Mr. Tyler. This Course was elected by twenty-nine students. It was fully described in my last report.

Course Fourteen. English Literature: History of the Drama. Conducted by Mr. Tyler. This Course consisted entirely of lectures, delivered at the rate of one each week throughout the second semester. The Course is intended to be auxiliary to the work done in the study of Shakespeare. It was elected by forty-nine students.

The need of an *Instructor in Elocution*, who should take charge of the work of the first year in Speeches and of the Course in Extemporaneous Speaking, has been felt for some time. The large increase during the past two years in the number of students electing work in English, renders such an addition to our teaching force well-nigh indispensable to our success in this department.

M. C. TYLER.

IX.—FROM THE PROFESSOR OF MINERALOGY AND ECONOMIC GEOLOGY.

In compliance with the request of the Board of Regents, I beg leave to submit the following report of the work done in Mineralogy and Economic Geology for the academic year 1879-80.

As my leave of absence did not expire until the middle of February the work in these branches has been confined to the second semester. In Mineralogy 1, there was a class of ten persons, which, for a considerable part of the time, was divided into two sections of five each, each section attending instruction twice a week, two hours each time. In Mineralogy 2, there was a class of four persons, two of

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them being graduates of the School of Pharmacy. This class had a daily exercise, two hours each day, excepting Tuesdays, when the second hour had to be omitted. In both classes the instruction consisted of lectures, followed by the practical determination of specimens placed in the hands of the students for examination. In Mineralogy 3, one student pursued a special course for a part of a semester.

In Economic Geology (Geology 8) there was a class of three persons. In this Course attendance was required two days a week and two hours each day. The instruction was given by lectures, in connection with collateral reading in the library; it was not confined to Economic Geology exclusively, but was made to include also the elements of a course in Mining Engineering. This method of instruction was chosen because it seemed to be the best that could be adopted in justice to those students who had already made considerable progress in the studies required for the degree of Mining Engineer at the time when the School of Mines was discontinued.

In Geology 9, three students began the special study of the Geology of the United States, but the number was reduced to one in the latter part of the semester. I met the class for two hours on one day in each week.

For a large part of the semester I have been obliged to spend twenty-seven hours a week in the class-room.

W. H. PETTEE.

X.—FROM THE PROFESSOR OF CHEMISTRY.

I have the honor to submit the following report of work done in the department of General Chemistry.

Owing to the fact that students from every Department of the University, with the possible exception of the Law School, study General Chemistry, and that the record of the number in attendance is kept by the Deans of the respective Faculties, I am unable to state exactly the size of the classes, but of professional students the aggregate will be not far from five hundred and twenty-five.

In the Literary Department five elective Courses are given, and the whole number of students in attendance upon these is one hundred and eight.

In the report last year the hope was expressed that it might be possible to inaugurate a new method of instruction, which promised to be a desired advance on the plan hitherto pursued. By the consent and aid of the Regents this has been done, and the experience of this year shows that it has proved to be almost a "new departure" in the means of teaching this subject. The object of the plan was to give to

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students methods of experimentally verifying the general theorems of the science, which, when learned from books only, are rarely apprehended with sufficient force and distinctness. A room in the chemical laboratory building fitted with desks and tables was accordingly assigned to the department, and was put in the immediate charge of the assistant in General Chemistry, Dr. Joy. Written circulars, issued daily, gave directions for the experimental performance of certain processes, which the student was required to follow; these processes were so chosen that they illustrated and embodied some one of the general theorems of the science, but the conclusions to be reached were not stated in the circulars, but were left to the independent thought of the student aided by references to books in the library. Thus each day's work took on somewhat the guise of a problem which could not be answered merely by a reliance on memory.

The success of the plan has been gratifying. All the tables in the room were at once taken, and the interest shown in the work has been from the first all that could be wished. I desire to urge strongly that the facilities in this direction for the coming year may be much extended. It is believed that with the exception of Cornell University this method of instruction is peculiar to the University of Michigan.

JOHN W. LANGLEY.

XI.—FROM THE PROFESSOR OF ASTRONOMY AND DIRECTOR OF THE OBSERVATORY.

I have the honor to report that the educational work of this department for the college year has been as follows:

FIRST SEMESTER.

Course 1	Theoretical Astronomy	3 Students	5 recitations a week
Course 5	Meteorology	8 Students	2 lectures a week
Totals ...		11 Students	7 exercises a week

SECOND SEMESTER.

Course 2	General Astronomy	19 Students	3 recitations a week
Course 3	Spherical and Practical Astronomy	10 Students	2 recitations a week
Course 4	Theoretical Astronomy	3 Students	5 recitations a week
Course 6	Advanced Astronomy	9 Students	3 recitations a week
Totals ..		41 Students	13 recitations a week

The instruments for educational purposes are expected from Washington, and will probably be ready for use in the second semester of the ensuing year.

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The work of this department includes also the care and use of the astronomical instruments pertaining to the Observatory. They have been in use in favorable weather throughout the year.

On the 1st of January, 1881, I desire to make a special report to the Regents on this branch of our work.

M. W. HARRINGTON.

XII.—FROM THE PROFESSOR OF ZOOLOGY.

During the first semester I offered two Full Courses. The first was a Course in Systematic Zoology, and was elected by fifty-six students. In this Course I go over the field of classification of animals in a general way, illustrating the lectures by specimens from the museum. It is planned for those students who intend to make no further study of the subject, but who wish to gain some knowledge of Zoology before leaving the University. A course of this kind, imparting a general knowledge of all animals, seems to me better fitted for the needs of this class of students than a special course giving more exact knowledge of some particular group. The Course also serves as an introduction to the higher works in Zoology for those who wish to continue the study.

Course 2.—The special study of Invertebrate Animals is not a popular course, but there are always a few, usually those who expect to each, who demand a course of this kind.

Course 3.—A course in Comparative Anatomy and Physiology was given for the first time during the past year. It was elected by forty students.

I considered a certain amount of microscopic work necessary for this Course, and was able to secure the use of the Physiological Laboratory in the medical department for this purpose. Ten lessons were given by Dr. Stowell on Vertebrate History, and five by Mr. De Tarr in the Microscopical Study of Invertebrates. I found this work of great value and interest to the class, and think there should be some permanent arrangement by which the use of the microscopes in the Physiological Laboratory can be secured for the use of literary students in Zoology, or that a nucleus of a Microscopical Laboratory be formed in connection with the department of Zoology. There is certainly as much need, in the nature of things, for the use of the microscope in zoological as in botanical study.

Course 4.—A study of Vertebrate Animals with identification of species. This Course was elected by thirteen students. The subject was studied by lectures, illustrated by specimens from the museum and collections of tropical and foreign forms, while the vertebrate

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animals of Michigan and the North-west were made a special subject of study, and some one hundred and fifty species identified by each student from skins in the possession of the University, and from collections made by the students.

In addition to the regular work, several lessons were given in the microscopic study of tissues.

I also gave five lessons in Taxidermy to the class, though not a part of the regular work. This Course is one of the most satisfactory and useful that I have to offer.

Course 5, Entomology, was offered by Mr. Higley, the assistant in the Museum. Mr. Higley did much work in the study of insects, and gave excellent satisfaction in his teaching of the subject. Ten students elected the Course.

Course 6 was a continuation of Course 2 in the special study of Invertebrate Animals, and was given at the request of a few advanced students in Zoology. The Course consisted entirely of Laboratory work.

SCHEDULE OF WORK DONE IN ZOOLOGY FOR THE YEAR 1879–80.

Subjects.	No. of Course.	No. of Students electing each Course.	Hours of work of Students a week in each Course.	Hours of work in teaching and preparation of the Professor in charge.	Remarks.
Systematic Zoology by Lectures.	1	56	5		Courses 1 and 2 were given in the first semester. Courses 3, 4, 5 and 6 were given in the second semester.
Study of Invertebrates. Laboratory work.	2	4	10	25	
Lectures in Comparative Anatomy and Physiology.	3	40	6	30	15 lessons in Microscopic Histology were given with this Course.
Study of Vertebrates. Lectures and Laboratory work.	4	13	10	10	5 lessons in Microscopic Study of Tissues were given with this Course.
Study of Invertebrates. Laboratory work.	6	3	10	—	
Entomology. Laboratory work.	5	10	10	20	Taught by Mr. Higley the assistant in the Museum.

Whole number of students electing Zoology in first semester..... 60
Whole number of students electing Zoology in second semester..... 66
Number of hours a week spent by the Professor in charge during first semester..... 25
Number of hours a week spent by the Professor in charge during second semester..... 40
Number of hours a week spent by Mr. Higley during second semester..... 20

The needs of the department of Zoology, as they appear to me, are the following:

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First, an assistant, competent to do part of the teaching and to assist in identifying and arranging the collections for the New Museum.

Second, either microscopes which shall be the property of the department, or the use, when needed, of those belonging to the Physiological Laboratory.

Third, a room specially devoted to Zoology, so that the labor of removing and replacing specimens for illustration may be lessened, and that suitable black-boards and charts may be used. The room now used serves for three Professors teaching three distinct subjects.

Fourth, a set of cases and drawers for the preservation and display of a series of specimens to be used in teaching, as the removal of the collections to the New Museum will necessitate the keeping of a set for this purpose in the old building.

J. B. STEERE.

XIII.—FROM THE PROFESSOR OF MODERN LANGUAGES.

There were four Courses of instruction offered in French for the first semester. In Course 1, seventy-six students were instructed in three sections, two by Mr. de Pont, one by Mr. Hennequin. These students were beginning French, and the work was entirely elementary; the text-books used were Duffet's grammar, with Hennequin's French Verbs and Reading-lessons. Course 2, Idiomatic Analysis and Composition, was taken by seventy-five students, instructed in two sections by Mr. de Pont and Mr. Hennequin. The members of these classes practised in the use of the most frequently recurring idioms in French and read, one section, Gerusez' Abrégé, the other, Corneille's Cid. Course 3, in the Classic Drama, was taken by twenty-five students, who read, under Professor Morris, a play each of Racine and Corneille, and two of Molière. Course 4, in the Romantic Drama, was elected by nine students, who read, under Professor Morris, three plays and a romance by Victor Hugo.

Four Courses of instruction in French were also offered during the second semester. In Course 5, a continuation of Course 1, sixty students were instructed in three sections by Mr. de Pont and Mr. Hennequin. The study of the grammar was continued and about two hundred pages of French prose were read. Course 6 was elected by fifty-four students, instructed in two sections by Mr. de Pont and Mr. Hennequin. About two hundred pages were read and analyzed by the classes, the selections being from Boileau, Voltaire, etc., and essays in French were written and corrected. Course 7 was elected by twelve students, who read under my instruction about two hundred pages of sixteenth century French. Course 8 was taken by twenty-six students,

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who read under Mr. Hennequin two plays and two romances by modern authors, Victor Hugo, Dumas, etc.

Two Courses in German were offered for the first semester. German was begun by one hundred and twenty students, in four sections, two taught by Mr. Hennequin, two by Mr. Thomas. Whitney's grammar was completed, and about thirty pages of the Reader were translated in class. Course 2 was pursued by sixty-seven students, in two sections, under Professor Morris and Mr. Thomas. Gœthe's Iphigenie and Hermann and Dorothea, and the larger part of Grossmann's Poesie were read. Four Courses in German were offered for the second semester. Course 3, a continuation of Course 1, was pursued by one hundred and four students, in four sections, one section taught by Mr. Hennequin and three by Mr. Thomas. Plays by Schiller and Lessing, and modern comedies were read, and the grammar was reviewed. Course 4 was pursued by thirty-six students, who read under me the larger part of Lessing's Laokoon. Course 5 was elected by thirteen, who read under me the most of a history of German literature in German. Course 6 was pursued by forty-five students, who read under Mr. Thomas the first part of Gœthe's Faust.

A class in Italian, consisting of thirty-eight students, completed under my instruction about half the grammar and read about twenty-five pages in the Reader. It would be highly desirable in my judgment to provide means by which greater facilities could be offered for the study of Italian and Spanish. No earnest student of literature can afford to be ignorant of the languages of Dante and Cervantes.

I also gave instruction in Gothic to one student, and one chapter in Ulfilas' translation of John was read. Mr. Thomas, also, has endeavored to supply a deficiency in the University work by giving a course in Sanskrit to a class of seven in the first semester, and three in the second.

The department has been in a very prosperous condition throughout the year, the chief difficulty being the great size of the classes. Instruction cannot be so efficient where thirty-five or forty students have to be taught in the same class, and only the skill and enthusiasm of my assistants have prevented this from being a very serious drawback.

EDWARD L. WALTER.

XIV.—FROM THE PROFESSOR OF GEOLOGY AND PALÆONTOLOGY.

Recalled to the duties of a Professor in the University, after an absence of six years, I entered upon my work with zeal and confidence. Six years had furnished me opportunity for observation and study in

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the universities and museums of Europe, and I resumed with zest and delight my relations with Faculties and students in the University to which I have now devoted twenty of the best years of my life. The renewal of this relation, however, was effected after the students had made their elections for the year; and this circumstance, I have no doubt, limited the number of applications for the entirely optional Courses which I was enabled to offer in September last.

Experience and observation having convinced me that students pursuing studies from free choice, may fairly be assumed to possess sufficient zeal and appreciation to prompt them to faithful duty, I determined, as heretofore, to reduce my instruction to the form of familiar lectures, and thus devote the hour spent with the class to the impartation of positive information rather than to quiz or drill. This method I felt to be further sanctioned by the comparative maturity of students who feel moved to elect from the class of studies to which general geology and palæontology belong. With younger students, and in all subjects compulsorily pursued, there must be many needing the stimulus of a daily quiz; but it is certain that the time spent in quizzing for the benefit of such, is comparatively lost to students of the requisite aptitude and of adequate industry. In any event, experience has shown that the method pursued is the way to success.

Course 1, organized with these views, was intended to be the leading or principal course in the elements of general geology. It was offered to students without special preparation in geology. It proceeded systematically, according to a didactic method, over the successive chapters of terrestrial history, so far as they lie within the domain of observation and inductive science. Pauses were made at appropriate stages of the Course, to offer elementary instruction in lithological, stratigraphical, and chemical geology, and in the general structure and affinities of the various types of animals and plants which play important roles in the history of organization.

As an aid to the student in reviewing the discussions of the class-room, and in attaining to a systematized intellectual grasp of the whole subject, I prepared and published an Analytical Syllabus of the science of geology, containing references to sources of information. The references under each sub-division lead the student, first, to two or three standard text-books, and then to other well known and accessible works, and finally, in many cases, to the less accessible original authorities. It is thus intended to be of use not alone to the student of the elements, but also to the more advanced student and the investigator. This Course occupied two hours a week in the class-room, and was elected by thirty-four students.

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Supplementary to Course 1 was Course 2, the aim of which was threefold: 1. To review the subject presented in the other Course, stating principles in new language and different lights, offering opportunity for conversation and discussion, and often extending the instruction to collateral themes which, in the regular lectures, had to be omitted. 2. The introduction of a limited quiz, intended less to test the knowledge of individual students than to indicate the points regarded of first importance. 3. To afford an opportunity of review for students who had already taken one or more Courses in geology, but who felt that their acquirements needed greater precision and clearness. Experience showed that this Course was gladly sought, and was peculiarly suited to meet the necessities of students. It occupied one hour a week in the class-room, and had an attendance of thirty-three.

Course 3 was devoted to elementary palæontology. The generalities of palæontology were, indeed, presented in Course 1. In this Course it was proposed to discuss more attentively the principal types of extinct life, and show their relations to the world of actual life. Eozoon, corals, crinoids, trilobites, chambered shells, brachiopods, reptiles, and mammals, were taken up in succession; and finally, several lectures were presented, in which I endeavored to explain the wider relations of the numerous facts to each other and to the progress of life and of the world. These generalizations laid a broad scientific foundation of facts and doctrines on which to build, in the second semester, some theories which stand yet, somewhat undefined, in the dim light of speculation. This occupied two hours a week in the class-room, and was elected by seven students.

I provided further a Course in advanced palæontology, designated Course 4. It was intended for students already acquainted with the elements of geology and palæontology, and was confined to thorough investigation in a limited field. The subject taken up was *Stromatoporidæ*, accessory to which was a full study of *Eozoon*, the oldest known animal form. The subject was prosecuted by the aid of numerous actual specimens, microscopic sections, and all accessible literature. The student was required both to describe and to depict every feature of interest, whether in the full-sized specimen or in microscopic sections. This Course occupied the student ten hours a week, five of which were in the presence of his instructor. There was only one election of this exacting Course; but I shall always seize the opportunity to give direction to the most advanced study, even if no more than one student develops the aspiration for it, and feels willing to undergo the requisite toil.

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In the second semester, Course 5 was a continuation of the subject of elementary geology; but it was devoted to theories, as the first Course was strictly confined to facts and doctrines. I desired to keep the theories of the science apart from the positive data and settled principles, in order that the student might be saved from the somewhat popular error of conceiving geological science as a mere bundle of changing and unsubstantial speculations. This Course afforded the opportunity to discuss the internal condition of the earth, cosmogony, comparative geology, mountain-making, the question of evolution, and the pre-historic condition and antiquity of mankind. The Course could only be taken by such as had already acquired the elements of geology and palæontology. The student's work was aided by Part II. of the Analytical Syllabus, with references to sources of information. The two portions of the Syllabus cover 115 octavo pages, and contain not less than 6,000 references. This Course occupied one hour a week, and was elected by twenty-nine students.

Course 6, like Course 2 of the first semester, was intended for examination, review, amplification, and mutual discussion. The subjects, so full of living interest and suggestion, were taken up by the students with eagerness, and often with unexpected discernment and good judgment. The Course was one hour weekly, and was taken by twenty-three students.

Course 7, like Course 4, was a continuation of advanced palæontology. The special subject was brachiopods. These forms were studied in the anatomical structure both of the shell and of the soft parts, their classification, their geological history, and their special relations to American geology. Two students prosecuted the study of microscopic structure to a considerable extent, and made and recorded observations which were really new to science. Many microscopic drawings were made, illustrating, in some cases, points not hitherto shown in any published works. The Course was elected by three students, who were required to devote to it ten hours a week, five of which were in the presence of the instructor.

The chair of general geology and palæontology covers ground from which grow some of the most fruitful applications of science, and some of the most momentous questions in scientific philosophy. I feel, therefore, a profound interest in giving it a respectable and authoritative standing among the other important chairs of the University. I not only hope to offer the most effective facilities for the dissemination of elementary ideas; but I believe the best interests of my chair and of the University in its present stage of development require very especial efforts to foster the spirit of advanced scholarship. If such is also the

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view of the authorities, I shall co-operate with them zealously and untiringly.

ALEXANDER WINCHELL.

XV.—FROM THE PROFESSOR OF THE SCIENCE AND THE ART OF TEACHING.

I respectfully submit the following report of my work during the current year.

The greater part of my time has been spent in the organization of my Courses, in doing preliminary and preparatory work.

During the first semester, the purpose of my lectures was to teach the art of organizing, governing, and supervising public schools, and to discuss the general principles of school management.

During the second semester, it was my aim to teach the principles that underlie the art of instructing and governing, and to discuss methods and systems of education.

During the first semester, I lectured twice a week, on Tuesdays and Thursdays; and during the last half of the second semester, I had five exercises a week, four on Tuesdays and one on Thursdays.

The attendance on my Courses was as follows:

Whole number of pupils in Course I	36
Whole number of pupils in Course II	78
Total in both Courses	114

WILLIAM H. PAYNE.

XVI.—FROM THE ACTING PROFESSOR OF PHYSICS.

The following report on the work done in the department of Physics during the year 1879–80 is respectfully submitted.

During the year eight Courses were offered, four in each semester. In the first semester the experimental lectures and recitations were continued as heretofore. The number of students completing the work in the several Courses was as follows:

Two lectures and one recitation a week	47
Two lectures and three recitations a week	43
Total	90

In addition two new Courses, numbered 7 and 8, were offered. As the few students electing the former of these—Theoretical Physics—were not prepared for a mathematical course, special reading in the library was assigned them, and one hour a week was spent with them

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in reviewing the work. Course 8 in Physical Problems was completed by nine students. To this work one hour a week was given.

During the second semester the courses in the Physical Laboratory, 3 and 4, were taken by fourteen students, seven of whom spent at least two hours, five days a week; the other seven, two hours, three days a week; of these, three were doing advanced work. Two or three others have done considerable work, but have not yet taken their examinations. The short course in Advanced Acoustics was withdrawn as it was elected by very few students. The Teachers' Course was given as heretofore.

The time devoted to the work of the department during the first semester was: For lectures, four hours a week; for recitations, ten hours; for the preparation of lecture-experiments, four or five hours. During the second semester I directed the work in the Physical Laboratory three hours daily, and gave about ten lectures to the Teachers' class.

The research begun by a post-graduate student during the preceding year on the "Friction of Fluids" was continued with improved apparatus of his own devising and construction, and the results were embodied in a thesis presented for the degree of Ph. D., which he received at the last commencement.

Every year since the opening of the laboratory there have been advanced students in attendance on the work, both undergraduates and post-graduates. To meet the needs of such students, and to bring our equipment to the point where a comparison with several institutions in the Eastern States will not be to our disadvantage, a liberal increase in the supply of instruments for refined measurement and exact research, as well as of books of reference, is urgently needed. A good beginning has been made, and each year there has been some increase in the supply of apparatus, but very much more remains to be done. It is the earnest hope of all who are familiar with the work and needs of this department, that the much-needed increase may come soon.

CHARLES K. WEAD.

XVII.—FROM THE ASSISTANT PROFESSOR OF BOTANY.

I present the following report of work done in the department of Botany during the Academic year 1879-80.

Instruction in Botany was given in five different Courses as follows:

1. A Course in Systematic Botany, consisting of daily recitations, lectures, and analyses, continuing from the spring recess to the end of the year. In this Course the leading facts of plant morphology as exhibited in the higher phanerogams are presented; and, by numer-

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ous and repeated exercises with living specimens in hand, the student is taught to describe accurately and to analyze indigenous flowering plants. This Course, given by myself, was pursued by a class of fifty, chiefly pharmacy students, with several from the literary and medical departments.

2. A Course in Structural Botany. The study of the microscopical structure of plants and the history of the development and reproduction of typical species, was pursued by a class of twenty-four during the whole of the second semester. The class-room work was under my own charge and consisted of two lectures and recitations each week. The practical work was under the charge of Mrs. Stowell, the Microscopical Laboratory being open for this work from 8:15 to 12:30 daily.

3. A Course for advanced students in Botany, designed for those who wish to pursue special investigations, occupying three fifths of the second semester and pursued last year by four students. This class was under my own charge, three afternoons each week being devoted to practical work in the herbarium.

4. A Course in Cryptogamic Botany, extending through the first semester, in which the study of fungi occupies most of the time, was elected by eight students. I met the class for lectures twice a week and worked with them in the microscopical laboratory from 2 to 5 P. M. daily. A very creditable amount of original work in the way of investigation of injurious species of fungi was performed by the members of this class.

5. A Course in Pharmaceutical Botany, also occupying the whole of the first semester. This Course is taken by the senior pharmacy class, but is also elected by students in the literary department, and was pursued last year by a class of thirty-two. Mrs. Stowell had charge of the practical work and gave instruction in the Laboratory from 8:15 to 12:30 each day, besides delivering a lecture before the class once each week. In addition to this I met them twice a week in the class-room for recitations.

In addition to the Courses above described it is proposed to offer a Course for the study of the principles of Forestry, as soon as practicable, probably in the second semester of the present year.

Work in the herbarium has been carried on by Miss Allmendinger during the past year with the same industry and accuracy that have always been characteristic of her work. The labor of mounting and arranging the specimens has been carried so far that it can now be substantially completed the present year if suitable help is provided. The botanical collection has been increased by the presentation of numerous specimens collected by Dr. J. B. Steere in Brazil, by a large

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and valuable collection of fungi secured by Professor M. W. Harrington as exchanges, and by the addition of various donations from other sources.

The Microscopical Laboratory is now well equipped for all ordinary work in Structural and Pharmaceutical Botany.

There is, however, an imperative need of a few better objectives than have yet been furnished us. One of our post-graduate students having undertaken the study of fermentation and putrefaction, it becomes absolutely necessary to provide him with a suitable immersion objective. It is hoped that an amount not to exceed one hundred dollars may be appropriated for this purpose by the Board of Regents at their next meeting.

I append a tabular statement of Courses, number of students pursuing them, and hours a week spent by the instructors in the classroom and Microscopical Laboratory.

FIRST SEMESTER.

Course.	No. of Students.	Hours a week.	
		V. M. Spalding.	Mrs. Stowell.
1. Cryptogamic Botany	8	16	
2. Pharmacology and Structural Botany	32	2	20

SECOND SEMESTER.

Course.	No. of Students.	Hours a week.	
		V. M. Spalding.	Mrs. Stowell.
3. Structural Botany	24	2	
4. Special Botanical Investigation	4	9	
5. Systematic Botany	50	5 after spring recess	20

V. M. SPALDING.

II.

FROM THE DEAN OF THE DEPARTMENT OF MEDICINE AND SURGERY.

In compliance with your request, I have the honor to make the following statements respecting the work done in, and the needs of, the Department of Medicine and Surgery.

The attendance during the past year has been greater than that of the preceding, notwithstanding the lengthening of the term to the full college year, and the requirement of an additional year of college work, or the attendance at the college of three years of nine months

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each. During the year the usual amount of didactic instruction has been given, and the amount of teaching and labor in the Hospital and Clinical Amphitheatre has greatly increased.

The work in the various Laboratories—Chemical, Anatomical and Physiological—has been vigorously pursued, and all the members of the teaching corps have been present and faithful in the discharge of their duties.

Besides the labor performed in the Department of Medicine and Surgery, several of the Faculty have given instruction in the Dental College, delivering special though short courses of lectures adapted to the wants of the students in that Department.

The increase of the number of students in our own Department, and the presence of students from other Departments at our lectures have greatly embarrassed the Faculty, and seriously incommoded the students by want of sufficient seats in the lecture rooms, and several of our students who matriculated have left because they were unable to procure proper places.

The division of the class which we are now endeavoring to effect will diminish, it is hoped, the crowding in the lecture rooms, but will greatly increase the labor of the Faculty—so much so that, without increase of assistance, full justice cannot be done to students, especially while so many not belonging to our classes are crowded into our rooms.

The repeated presentation of claims for increased expenditure is by no means agreeable to the Faculty, and may be annoying to the Regents; but the continued expansion of the science and the art which we teach, and the increased number of students seeking our instruction, present increased needs which are imperative, and force us to request that while the number of students now taught continues an increase of assistance be afforded. Our lecturing force may perhaps be sufficient, but we need more aid in questioning or drilling on the subjects of the lectures, and in text-book drill.

In most of the large schools in New York and elsewhere, special instruction is given outside of the Faculties, for which additional, and in some cases, large fees are charged. As but few students are able to pay these fees a large majority of the students do not secure this kind of teaching. To encourage or even allow this system of charging is contrary to our policy and our profession. We promise a complete medical education, at a low rate of fees, demanding time, talent, and knowledge, rather than money, and we are convinced of the importance of more personal drill and recitation from books; this cannot be had with bodies of several hundred together. It requires

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division into sections of moderate numbers; and this work it is impossible for the Professors to do, with the number of lectures they have to give, and to repeat to the women connected with the Department.

We feel the more confidence in calling your attention, and the attention of the Regents to this subject, as the Faculty of our sister Department of the law have found it important to employ an able and distinguished member of their profession to do for their students this kind of work.

Our Faculty are striving to make the Department of Medicine and Surgery a model of its kind, and more work in this direction is necessary for the purpose. The work needed to be done requires ability and experience such as will command compensation. The compensation need not be large, but it should be such as to secure more continued service than will be rendered by young men for the honor of having their name appear in the Calendar.

The Hospital requires most imperatively a greater number of assistants, and the same persons who render skilled assistance there might aid in teaching students. We do not see how assistance of this kind can be dispensed with; for even if relieved from instructing students in other Departments it would be impossible for members of the Faculty to perform all the work in drill and recitations required. The hospital and clinical work has so largely increased, that those engaged in teaching the practical branches are now devoting so large a share of their time to duties in the Hospital and Clinical Amphitheatre, that the work of reviewing and instructing the class in sections cannot be performed by them.

The plan to which attention has been called on former occasions, of interesting the State directly in the Hospital, making it an institution for receiving the patients from the State School at Coldwater, and from the different counties, patients afflicted with diseases which cannot be so conveniently treated outside of a hospital supplied with all the necessary appliances, and in the charge of those who devote special attention to particular diseases, has been received with much favor in different quarters; and the Faculty again express their willingness to undertake the additional responsibility and labor which an enlargement of the Hospital and the receiving of that class of patients would involve. We do not doubt it would be a matter of economy to the State, and we hope it would be the means of restoring to comparative health, and the power of self-support, some, at least, who would otherwise require the continual support of the State.

A. B. PALMER.

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III.

FROM THE DEAN OF THE DEPARTMENT OF LAW.

The Faculty of Law in reporting upon the work of the last year have only to report general prosperity and satisfactory progress. Unfortunately, the health of Professor Wells failed before the beginning of the college year, and it became necessary to secure some one to take his place while his disability continued. Our former associate, Professor Charles I. Walker, LL. D., on being applied to, kindly consented to give the Department the benefit of his services, and remained with us during the year. The attendance of students was large, being in all 395, of whom 175 received the degree of Bachelor of Laws at the annual commencement in March.

The Tappan Professor gave his services through the year to those students who were not applicants for a degree. For the more thorough instruction of those students it was found necessary to divide them into two sections; but this was only because of their great number, as each section took the same studies. The special exercises have consisted in systematic instruction in the rudimentary elements of the law, taking as text-books, chiefly the Commentaries of Sir William Blackstone and Chancellor Kent. Portions of these works are regularly assigned for their study, and critical examinations are had upon them by way of recitations. These exercises, moreover, are always accompanied with such oral explanations and instruction as may seem needful to a full comprehension of the subject. As a general rule the young men appreciate the importance to their future progress and success in the profession of a thorough knowledge of the fundamental principles of the law, and as they become interested in these, devote themselves with commendable industry and zeal to acquiring a mastery of them.

The Faculty of Law deem it their duty to press upon the attention of the Regents, at this time more than ever before, their special wants and necessities. It is well known to you, as it is to others connected with the University, that two important interests have long suffered from comparative neglect when University funds were being appropriated. One of these is the University Library, which has now for some fifteen years been imperfectly accommodated with what was intended to be, and should have been, only temporary quarters, in the Law Building. No one better than yourself can explain to the Regents how inconvenient this has been, but they can easily see for themselves if they will visit the room at almost any time during the

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college year. As the number of students who are pursuing post-graduate courses increases, the inconvenience is felt much more severely, and it will be greater and greater every year.

The other interest is that of the Law Department. If the University Library were removed from our building, we should have not a foot of space in it which would not be needed for our purposes. Instruction suffers now for want of room, and it is quite impossible to subdivide our classes for examinations, as they need to be subdivided. The present Law Library room is also wholly inadequate.

The Faculty of Law have witnessed with pleasure and without a murmur the additional accommodations which from year to year have been provided for the Medical Schools, and the School of Pharmacy, and rejoice in those schools being able, by the aid thereof, to do full justice to all who come for instruction therein. They have not been disposed to push their own wants to the detriment of the schools named, or indeed to the detriment of any other school, or of any general interest. When the University has had means, their invariable desire has been that they should be so expended as best to subserve the common interest. Their disposition in this regard has probably led to their own needs being sometimes overlooked, and discriminated against, and this has seemed especially plain to them during the last two or three years.

The great and paramount need of the University at this time, in our opinion, is better accommodations for the University Library. For this purpose a building specially designed for the Library is required. Its erection would accommodate and advantage every professor and every student in every school of the University, and would enable the library to be protected and increased. But its erection would accomdate the Law School specially, because it would give to it the room it imperatively needs, and which of right belongs to it. It cannot be just that this Department should any longer give up half the available space in its building for the accommodation of all the other schools, when it has not a foot to spare, and is suffering for the want of the whole building for its exclusive use.

The Faculty most respectfully request that you urge this great need upon the attention of the Regents. You can remind them at the same time of a fact to which we have already called their attention, that within our present limited quarters we can neither increase the number of our books, nor protect those we already have.

T. M. COOLEY.

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IV.

FROM THE DEAN OF THE SCHOOL OF PHARMACY.

The number of students in the School of Pharmacy during the past collegiate year has been eighty-one; comprising forty-seven in the work of the first year, thirty-four in that of the second year, and one graduate. The number completing the requirements and receiving the degree was twenty-three. For the past six years, the average annual number of students has been seventy-two, and the average annual number of graduates has been twenty-four.

An advance in the requirements for matriculation, declared in December, 1878, has just now taken effect, for the entering class of the next collegiate year. One purpose in the adoption of this advance was to check an increase in numbers, an end which has been barely accomplished, as appears from the fact that at the present date forty-nine have entered for the work of the first year. Of these, twenty-nine, or fifty-nine per cent, were admitted upon diplomas, and certificates of good standing in collegiate institutions.

Regarding the professional success of the school, good evidence appears in the station and employment of the alumni, as registered in the alumni list of the Announcement of the School for the last year. Of the two hundred and thirty graduates, not including those of the present year, sixty-seven per cent. are in the practice of pharmacy and chemistry, including manufactures. Twenty-one per cent. have entered the profession of medicine. Of the twenty-five graduates of 1879, twenty-one were engaged in the practice of pharmacy before the close of that year, and three had entered on further studies in the University. The services of our graduates are most in demand in houses where our graduates have already been engaged, and especially for the duties of the prescriptionist. Also, several of the largest manufacturing pharmacists of the country obtain chemists from this school, and there is an increasing inquiry for our graduates to serve as analysts, especially for the detection of adulterations in articles of food.

Of the last graduating class forty-six per cent. had been engaged in the practice of pharmacy before entering their college work. The remainder enter upon the vocation, in a subordinate capacity, to gain that experience obtained only in actual business, and having the good help of systematic training to enlighten the duties of apprenticeship.

The accomplishment of original work, as required for graduation, continues to be an object of earnest interest and no little labor. The thorough search of authorities and memoirs required in support of

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every investigation, is much more difficult to obtain of the student, than is the faithful execution of the experimental work. To bring about more completeness in the search of authorities, on the part of the students, and to train them in the use of the literature of their profession, bibliographical subjects were assigned to three members of the last class. Fair results were obtained, encouraging us to persevere. One of the theses just named, an index to the Literature of the Solanaceous Alkaloids, of one hundred manuscript pages, has already been obtained in copy for use in literary work, and it well deserves publication. Of the experimental investigations of the last graduating class, papers are being published in *The American Journal of Pharmacy*, Philadelphia; *The American Chemical Journal*, Baltimore; *The Journal of the American Chemical Society*, New York; *New Remedies*, New York; *The Physician and Surgeon*, Ann Arbor. Especially deserving of mention is a full and careful research on the "Cinchonas of Commerce," with original drawings from the microscope, to appear in the November number of the journal first above named. The subject of the assay of drugs containing alkaloids has been assigned to this school by the Committee on Revision of the Pharmacopœia. This was first undertaken in 1878, on request of a Committee of the American Pharmaceutical Association, and reports sustained by the work of four of our students were published in the proceedings of that year, (pp. 806–838). The results were embodied and extended in the volume of the American Pharmaceutical Association's report on the Pharmacopœia, in 1879, and were criticised approvingly by the English journals, and published in full in several of them. Four members of our last class carried out trials of methods within the same field, and the reports of their work are engaged to the Committee of Revision, and nearly ready to be published.

The responsibility undertaken by our school, in contributing to the stock of learning in the profession to which it belongs, is indicated by a computation lately made by a member of the class of 1876, who finds that about forty-five per cent. of all our graduates have done work reported in the chemical journals of this and other countries. The greater part of our contributions, for several years past, appear, either in full or in brief, in the pharmaceutical year-books of England and Germany. Many of these reports are of brief extent, yet they serve to give our students a constituency in the body of learning and an interest in every study. Among those of larger import, may be named a new Analysis of the *Lobelia Inflata*, by a member of the class of 1877, prepared by him for *The Pharmaceutical Journal*, of London; the discovery of a third alkaloid in Hydrastis, by a member of the

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class of 1873, continued by a member of the class of 1875, and published throughout; a general scheme of chemical analysis of plants by one of the class of 1876, given to *The Chemical Journal* of the Johns Hopkins University, last year, and widely republished; and analyses of waters before and after household filtration, by members of the classes of 1877 and 1879, published in *The Chemical News*, London, and in the report of the Michigan State Board of Health, for this year. A brief method for the analysis of soaps, patiently worked out in our Laboratory in 1874, and then very widely circulated in the publications, is of interest to us as being the first contribution of an alumnus of that year, who has since gained decided honors in the societies of chemistry and pharmacy abroad, now holding a responsible place in the Faculty of the official School of Pharmacy in England, where he has been active in original research. These evidences of the capability of our system of instruction, under the advantages generously afforded us by the University and the State, are presented for the encouragement of the friends of our School. Also, they attest the faithful industry and the good ability of the teaching force which the University has assigned to the studies of the School of Pharmacy.

A schedule of the chemical laboratory work of the School of Pharmacy is given, with the extent of each course and the duties of each instructor, in the accompanying report on *Applied Chemistry*. A summary of the other required studies of the school, including the number of students, the hours and duration of each study, and the extent of duty of each officer of instruction, is here appended:

	Number of Students.	Exercises* a week.	Duration of Course.
1. General Pharmacy. PROF. PRESCOTT. Lectures and Recitations. Students in first year	44	2 to 3	22 weeks
2. General Chemistry. PROF. LANGLEY. Lectures, with a class in Department of Literature, Science, and the Arts. Students of the first year	42	3	14 weeks
3. Systematic Botany. ASST. PROF. SPALDING. Recitations and Practical Studies. Students in first year	50	5	12 weeks
4. Pharmacology and Micro-Botany	32		16 weeks
Lectures. ASST. PROF. SPALDING		2	
Lectures. MRS. STOWELL		3	
Laboratory work. MRS. STOWELL		3	
5. Materia Medica. Students in second year. Lectures, with Department of Medicine and Surgery. PROF. FROTHINGHAM	32	2	20 weeks
Recitations. DR. VAUGHAN	32	2	32 weeks
6. Inorganic Pharmacy. PROF. PRESCOTT. Students of the second year. Lectures	31	3	16 weeks
7. Organic Chemistry and Pharmacy. PROF. PRESCOTT. Students of the second year. Lectures	27	5	20 weeks

*An exercise in the laboratory requires two to three hours; recitations and lectures continue one hour.

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Our School has two representatives, one from the alumni and one from the Faculty, engaged on the Committee for the Decennial Revision of "The United States Pharmacopœia," a work of much labor, for the common service of pharmacy and medicine.

We would not fail to present, through the President, to the Regents of the University, the grateful acknowledgements of every student and officer of instruction in our School, for the enlargement of the Chemical Laboratory. Though this enlargement has been more imperatively demanded for the larger numbers of the other professional departments using it, surely no branch of the University will gain more upon the score of comfort derived from the additional room, than the School of Pharmacy.

ALBERT B. PRESCOTT.

V.

FROM THE DEAN OF THE HOMŒOPATHIC MEDICAL COLLEGE.

In behalf of the Homœopathic College of the University of Michigan, I transmit herewith a synopsis of the general Educational and Clinical work done in this Department for the year ending June 30, 1880.

Course of Instruction.—The *Course of Instruction* just terminated has been more satisfactory to both Faculty and students, than that of any previous session, and the number of matriculates has increased over that of any preceding year. The educational course has been more comprehensive and thorough the past session than any preceding term, owing to our recent hospital accommodations and more extended clinical facilities.

Materia Medica.—The *Chair of Materia Medica* has delivered during the term 72 lectures exclusive of repetitions, which aggregate 144 didactic lectures for the session of nine months.

Theory and Practice.—The *Chair of Theory and Practice* has given 72 lectures and repetitions, which amount to 144 delivered during the session; these, together with the clinical work done by the same chair give an additional 72 hours. As an addendum to this chair, Professor Wilson has given 20 didactic, and has added about 40 clinical, lectures on the *Diseases of the Eye and Ear*, making a total of about 250 lectures delivered by that chair during the session.

The Chair of Surgery.—The work of this chair has been adapted as far as possible to the Graded Course; one half of the term has been devoted to teaching the *Principles of Surgery and Minor Surgery;* the remainder to Operative Surgery, including a review of the former, making 72 first lectures, which with the seconds give the total of 144

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lectures; these, with the clinical work twice a week of one and a half hours each, give a grand total of 252 clinical and didactic lectures during the term.

GYNÆCOLOGICAL AND OBSTETRIC CHAIR.—Since the appointment of Professor H. C. Allen by the Faculty to the *Chair of Diseases of Children, Obstetrical and Gynæcological Diseases*, created by the Board of Regents in March last, there have been delivered in this important branch of medicine about 30 didactic lectures, exclusive of about the same number of clinical hours devoted to the *treatment of these diseases*, making in the aggregate a total of 60 lectures clinical and didactic on these significant topics.

HOSPITAL WORK.—Since the opening of the Hospital and Amphitheatre and the consequent increase in the number of patients, the clinical staff have had their labors largely multiplied. The uniform success that has followed their ministrations, promises a rich harvest of clinical and bedside practice which will redound largely to the growth of this Department of the University.

THE THERAPEUTICS OF GYNÆCOLOGY AND OBSTETRICS.—A petition was presented to the Faculty the present session by the students of the Homœopathic College, stating that they were deprived of instruction in this interesting branch of practice, and were consequently unprepared to enter upon the active duties of their profession. The Board to whom this subject was referred promptly created a chair with the view of having this important branch properly taught. The Faculty were empowered to fill this chair, without compensation, and Dr. H. C. Allen, of Detroit, was appointed, and entered upon its important duties to the entire satisfaction of both the Faculty and students. The ability and fidelity which he brought to the work are attested partly by the summary of clinical and hospital cases treated by him since his advent to the chair. The Faculty request that the Board will make this chair a permanent one with a suitable appropriation for its maintenance hereafter.

EXAMINATIONS.—The Faculty, with the idea of giving extended publicity to the thorough teaching that has marked this Department of the University the past year, and for the purpose of reviewing the important subjects gone over during the long session of nine months, have instituted a plan of "*Examination reviews*," beginning on the 7th day of June and terminating on the 25th day of the month, by the Examining Board. The plan has proved so valuable and acceptable to the students who have participated in it, that it is proposed hereafter to begin such reviews on the first of June for the benefit of all the classes in "*the graded course.*"

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THE EXAMINING BOARD.—The appointment of the Board of Examiners has produced a good effect in this, that it has separated to a certain extent the teaching and examining bodies, and has given an increased value to the Diploma of this College, so as to make it sought after by those students of medicine who prefer a thorough and systematic course of instruction. This, with the long term and the graded course, has placed this College at the very front of Homœopathic Schools in the country, and we believe that with a united and zealous Faculty, it is soon destined to become the best patronized school in the land.

I take pleasure in attesting, in behalf of the Faculty, our appreciation of the commendable manner in which the Examining Board has performed its functions, and the earnestness and ability with which it has accomplished the work allotted to it.

THE ECKEL MUSEUM.—In consideration of a long personal friendship with the occupant of the Chair of Surgery in this College, J. N. Eckel, M. D., of San Francisco, California, has generously donated $50, and a like sum to be paid annually, to maintain a Museum of Anatomical and Pathological Specimens for the sole use and benefit of the Homœopathic College.

ATTENDANCE CARDS.—In behalf of the Faculty, I request that the Board will take some action touching the importance of giving to all our class who attend the lectures in the department of Medicine and Surgery "attendance cards" showing their presence at such lectures. This is the rule in all well appointed medical schools, and the absence of it works injuriously to our students, in this, that without these cards they are deprived of privileges in the Canadian school that others possessing them enjoy. The requirements of the College of Physicians and Surgeons of Ontario, the *registration bureau* that regulates the practice of medicine and surgery in the Canadas, require these "attendance certificates" to prove the qualifications of the applicant for a license to practice his profession. Until such an arrangement is entered into in behalf of the Homœopathic College, we shall be deprived of the patronage of all such students from the Canadas who desire to become matriculates of the Homœopathic department of this University.

I trust that the Board will grant the above requests, which are presented solely for the best interests and future welfare of this College.

E. C. FRANKLIN.

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VI.

FROM THE DEAN OF THE COLLEGE OF DENTAL SURGERY.

The class during the period embraced by this report, numbered eighty-three, thirty-four of whom were candidates for graduation.

Attendance upon two courses of instruction is required for graduation. In many instances, however, three courses are taken instead of two; thus making the work easier and the instruction more thorough.

The following curriculum has been arranged with a view to grading the classes, and to accommodate those attending two, and those attending three, years:

First Year.—Anatomy, Physiology, Dissections, General Chemistry, Prosthetic Dentistry, Physiological Laboratory (Histology).

Second Year.—Review of First Year Studies; Clinical Dentistry, Theory and Practice of Dentistry, Pathology, Materia Medica, Analytical Chemistry, Metallurgy (Special).

Third Year.—Theory and Practice of Dentistry, Clinical Dentistry, Pathology, Therapeutics, Special Surgery (Oral), Diseases of Women and Children.

At the middle of the second year the student may be admitted to an examination on Anatomy, Physiology, General Chemistry, and Prosthetic Dentistry. This, if satisfactory, will be regarded as final. Prior to this he must make two or more satisfactory practical dentures, and also at this time present for deposit a denture that shall be acceptable to the Faculty. At the end of the second year, in addition to the above, an examination shall be had upon the principles of Pathology, Materia Medica, Histology, and Analytical Chemistry. During, and at the end of, the third year, examinations shall be had upon the remaining branches of the course, and an exhibition of such tests of skill and ability as the Faculty may require.

For those who may find it necessary to complete their course in two terms, the following schedule of studies has been prepared:

First Year.—Anatomy, Physiology, Dissections, General Chemistry, Analytical Chemistry, Theory and Practice of Dentistry, Prosthetic Dentistry, Principles of Surgery, Materia Medica, Physiological Laboratory.

Second Year.—Anatomy, Physiology, Pathology, Theory and Practice of Dentistry, Clinical Dentistry, Special Surgery (Oral), Therapeutics, Diseases of Women and Children.

Under the embarrassments with which the work is surrounded, it has, as yet, not been found practicable to enter fully upon the work according to the plan. More room and additional teaching force are required.

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The dental students attend almost the entire course of the regular medical instruction, embracing dissections, chemistry, and histology. In addition to this they have one lecture daily on operative or mechanical dentistry, and during about one-half of the term one lecture daily on special subjects.

The afternoon of each day is devoted to work in the clinical and mechanical branches. The work in the clinical room is under the direction of Dr. J. A. Watling, assisted by Dr. W. D. Billmeyer. The room for this work has a capacity for twenty five students.

The Dental Laboratory is in charge of Dr. W. H. Dorrance, assistant and demonstrator, aided by Mr. G. W. Morgan and Mr. A. W. Hoyte. This room has a capacity for thirty-eight students.

During about half the term from fifteen to twenty students were distributed in the Chemical Laboratory, the Physiological Laboratory, and the dissecting rooms; during the remainder of the term more room was greatly needed. The best interests of those who apply for instruction require that this want should be supplied.

Another urgent need is the appointment of a Professor of Mechanical Dentistry, with a thoroughly competent assistant. Without such aid it is impossible to make the instruction in this branch as thorough as it ought to be.

In view of the fact that so many of the students of this Department remain after the close of the regular term, to pursue such branches as may be open to them, it is here suggested that the interest of such would be promoted if provision were made for keeping open the clinical and mechanical rooms during that period. Hitherto, the work in these rooms has ceased at the close of the regular term in March. Such provision would certainly be an inducement for a greater number to remain and at the same time would afford them greater advantages

The service of one Professor with a good assistant, would be sufficient as instructors during this time. Those who have remained hitherto have regretted that the advantages which such an arrangement would afford, were not offered.

J. TAFT.

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APPENDIX D.

The Finance Committee of the Board of Regents submit a report for fifteen months to bring the financial year of the University to agree with the financial year of the State, from July 1, 1879, to September 30, 1880. Also an estimate of the probable receipts and disbursements for the year ending September 30, 1881.

RECEIPTS.

Balance on hand, July 1, 1879	$ 28,710.49	
Received from State Treasurer		
Interest on University Fund	51,451.78	
State Aid, 1-20 Mill Tax	47,250.00	
Steam Heating Apparatus	20,000.00	
Museum Building	40,000.00	
Homœopathic Hospital	6,500.00	
Homœopathic Medical College	8,000.00	
Dental College	7,000.00	
Hospital	3,000.00	
General Library	2,000.00	
Homœopathic Hospital Equipment	1,250.00	
Matron's House	1,000.00	
School of Mines Equipment	500.00	
First National Bank, Interest on Treasurer's Acct.	1,608.95	
Insurance on University Hall	904.34	
Duty refunded on Obstetrics Manikin	31.10	
Transfer from School of Mines Equipment	249.07	
Students' Fees, Laboratory Deposits, etc	76,707.93	
Total Receipts		$296,163.66

DISBURSEMENTS.

Paid Warrants for Salaries of Officers:		
Professors and Employees	$124,777.92	
Paid on Vouchers:		
Contingent Expenses	72,468.70	
Museum Building (special)	39,022.88	
Steam Heating Apparatus (special)	19,898.01	

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Homœopathic Hospital (special)	6,500.00	
General Library (special)	3,850.80	
Homœopathic Medical College (special)	3,244.22	
Hospital (special)	2,849.14	
Dental College (special)	2,087.23	
Matron's House (special)	1,000.00	
Homœopathic Hospital Equipment (special)	753.81	
School of Mines Equipment (special)	250.93	
Dental College Apparatus (special)	121.26	
School of Mines	20.00	
Physiological Laboratory (special)	2.45	
Transferred from School of Mines Equipment (special)	249.07	
Total Disbursements		$277,096.42
Balance in Treasury, October 1, 1880		19,067.24
		296,163.66

A statement of the receipts and disbursements for the General Expense Account and several special funds is also appended and classified.

GENERAL FUND.

Balance on hand, July 1, 1879,	$ 12,565.44	
Received from State Treasurer:		
Interest on University Fund	51,451.78	
State Aid, 1-20 Mill Tax,	47,250.00	
Students' Fees, Laboratory Deposits, etc	76,707.93	
First National Bank Acct.—Interest on Acct	1,608.95	
Insurance Paid on University Hall	904.34	
Duty refunded on Obstetric Manikin	31.10	
Transfer from School of Mines Equipment	249.07	
Total Receipts		$190,768.61

DISBURSEMENTS.

Paid Warrants, Salaries of Officers	$105,037.17	
Paid Vouchers for Contingent Expenses	72,468.70	
Total Disbursements		$177,505.87
Balance on hand, October 1, 1880		13,262.74

The expenditures on Vouchers for Contingent Expenses are classified as follows:

Alterations and Repairs	$ 9,325.47	
Fuel and Lights	6,846.66	
Grounds	619.20	
Postage	904.56	
Insurance	2,248.25	

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Engineering Department	561.21	
General Library	133.07	
Law Library	604.17	
Medical Library	512.36	
Advertising Medical Department	375.90	
Advertising School of Pharmacy	214.26	
Microscopical and Microscopical Laboratory	1,190.85	
Chemical Laboratory	9,024.20	
Department of General Chemistry	530.86	
Department of Physics	449.68	
Physiological Laboratory	566.68	
Astronomical Observatory	1,065.83	
Printing Regents' Proceedings, Calendar, and Commencement Address	1,548.58	
Students' Fees refunded	1,629.00	
Triennial Catalogue	93.00	
Portrait, J. D. Pierce, by A. Bradish	100.00	
Obstetrics, Manikin, Geo. Tiemann & Co	155.00	
Special Claim, J. C. Watson	534.45	
Attorneys and Accountants	458.75	
Steam Heating Apparatus	4,702.90	
Hospital Amphitheatre	3,473.43	
Museum Cases, construction	5,065.53	
Carpenter Shop and Machinery	3,124 94	
Laboratory Enlargement	9,170 89	
Contingent Fund	7,299.02	
		$ 72,468.70

SPECIAL FUNDS.

Homœopathic Medical College:		
Balance in Treasury, July 1, 1879	$ 3,014.71	
Received from State Treasurer	8,000.00	
Total Receipts		$ 11,014.71

DISBURSEMENTS.

Paid Warrants for Salaries	$ 6,450.00	
Paid Vouchers for Expenses	3,244.22	
Total Disbursements		$ 9,694.22
Balance in Treasury, October 1, 1880		1,320.49

DENTAL COLLEGE.

Received from State Treasurer	$ 7,000.00	
Total Receipts		$ 7,000.00

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